



SmartSwitch ATM Switch Reference Manual

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Part Number 04-0054-01 Rev. A
Order Number 9033003

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Note

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment uses, generates, and can radiate radio frequency energy and if not installed in accordance with the applicable SmartSwitch installation manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause interference in which case the user will be required to correct the interference at his own expense.



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DECLARATION OF CONFORMITY ADDENDUM

Application of Council Directive(s): 89/336/EEC
73/23/EEC

Manufacturer's Name: Cabletron Systems, Inc.

Manufacturer's Address: 35 Industrial Way
P. O. Box 5005
Rochester, NH 03866

Product Name: SmartSwitch 2500 family and SmartSwitch 6500

European Representative Name: Mr. J. Solari

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Conformance to Directive(s)/Product Standards: EC Directive 89/336/EEC
EC Directive 73/23/EEC
EN 55022
EN 50082-1
EN 60950

Equipment Type/Environment: Networking Equipment, for use in a Commercial or Light Industrial Environment.

We the undersigned, hereby declare, under our sole responsibility, that the equipment packaged with this notice conforms to the above directives.

Manufacturer:	Full Name:	Mr. Ronald Fotino
	Title:	Principal Compliance Engineer
	Location:	Rochester, NH. U.S.A.
Legal Representative in Europe:	Full Name:	Mr. J. Solari
	Title:	Managing Director - E.M.E.A.
	Location:	Newbury, Berkshire, England

SAFETY INFORMATION

CLASS 1 LASER TRANSCEIVERS

The IOM-29-4, IOM-29-4-IR, IOM-29-4-LR, IOM-39-1 and IOM-39-1-LR connectors use Class 1 Laser transceivers. Read the following safety information before installing or operating one of these modules.

The Class 1 Laser transceivers use an optical feedback loop to maintain Class 1 operation limits. This control loop eliminates the need for maintenance checks or adjustments. The output is factory set, and does not allow any user adjustment. Class 1 Laser transceivers comply with the following safety standards:

- 21 CFR 1040.10 and 1040.11 U. S. Department of Health and Human Services (FDA).
- IEC Publication 825 (International Electrotechnical Commission).
- CENELEC EN 60825 (European Committee for Electrotechnical Standardization).

When operating within their performance limitations, laser transceiver output meets the Class 1 accessible emission limit of all three standards. Class 1 levels of laser radiation are not considered hazardous.

LASER RADIATION AND CONNECTORS

When the connector is in place, all laser radiation remains within the fiber. The maximum amount of radiant power exiting the fiber (under normal conditions) is -12.6dBm or 55×10^{-6} watts.

Removing the optical connector from the transceiver allows laser radiation to emit directly from the optical port. The maximum radiance from the optical port (under worst case conditions) is 0.8 W cm^{-2} or $8 \times 10^3 \text{ W m}^{-2} \text{ sr}^{-1}$.

Do not use optical instruments to view the laser output. The use of optical instruments to view laser output increases eye hazard. When viewing the output optical port, you must remove power from the network adapter.

FIBER OPTIC PROTECTIVE CAPS



Warning

.READ BEFORE REMOVING FIBER OPTIC PROTECTIVE CAPS.

Cable assemblies and MMF/SMF ports are shipped with protective caps to prevent contamination. To avoid contamination, replace port caps on all fiber optic devices when not in use.

Cable assemblies and MMF/SMF ports that become contaminated may experience signal loss or difficulty inserting and removing cable assemblies from MMF/SMF ports.

Contamination can be removed from cable assemblies by:

1. Blowing surfaces with canned duster (Chemtronics p/n ES1270 or equivalent).
2. Using a fiber port cleaning swab (Alcoa Fujikura LTS p/n ACT-01 or equivalent) saturated with optical-grade isopropyl alcohol, gently wipe the end surface of ferrules first; then wipe down the sides of both ferrules.
3. Blow ferrule surfaces dry with canned duster.

Contamination can be removed from MMF/SMF ports by:

1. Using the extension tube supplied with canned duster, blow into the optical port, being careful not to allow the extension tube to touch the bottom of the optical port.
2. Reconnect cable and check for proper mating. If problems remain, gently wipe out optical port with a DRY fiber port cleaning swab and repeat step 1.



Warning

To avoid contamination, replace port caps on all fiber optic devices when not in use.

REGULATORY COMPLIANCE SUMMARY

SAFETY

The SmartSwitch 2500 family and SmartSwitch 6500 meets the safety requirements of UL 1950, CSA C22.2 No. 950, EN 60950, IEC 950, and 73/23/EEC.

EMC

The SmartSwitch 2500 family and SmartSwitch 6500 meets the EMC requirements of FCC Part 15, EN 55022, CSA C108.8, VCCI V-3/93.01, EN 50082-1, and 89/336/EEC.

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1 INTRODUCTION

This reference manual describes the console commands for the SmartSwitch 2500 family and the SmartSwitch 6500. Unless otherwise noted, the information in this manual applies to both the SmartSwitch 2500 family and SmartSwitch 6500.

Audience and Scope

The manual is intended for network administrators and others responsible for maintaining the SmartSwitch 2500 family and the SmartSwitch 6500.

Definitions

The manual is organized alphabetically by switch attribute.

- The definition of a switch attribute is a function that manipulates the switch in a specific way. For example: `buselan`
- The definition of an operator is the active verb that makes the switch attribute perform a specific task. For example: `show`
- The definition of a command is the combination of an operator plus a switch attribute. For example: `show buselan`

Note A small group of attributes does not require operators and can function as standalone commands. Those attributes are: `exit`, `history`, `passwd`, `reboot` and `shutdown`.

Content

- Chapter 2, "Console Commands," gives definitions, descriptions, and examples of all available commands for the SmartSwitch 2500 family and SmartSwitch 6500.
- Chapter 3, "Boot Load Commands" gives definitions, descriptions, and examples of the low-level boot load commands.
- Appendix A, "Acronyms," spells out the ATM acronyms used in this manual as well as those found in SmartSwitch user guides.
- Appendix B, "Event/Alarm Messages," describes the format of event and alarm messages that are recorded to circular buffers and can be displayed on the console.
- Appendix C, "Technical Support," gives instructions for contacting Cabletron by telephone, fax, electronic mail, and the World Wide Web.

Additional Information

You will find a list of acronyms, details about technical support, and an index at the back of this manual. The index contains page references for all switch attribute sections, command parameters, operators, command descriptions and command examples. There is also a table of commands at the end of this chapter. It lists all switch attributes by their operators.

For details on how to use the SmartSwitch 2500 family or SmartSwitch 6500, see the SmartSwitch user guide that applies. Each SmartSwitch user guide contains task-oriented information on switch configuration, maintenance, and SNMP (simple network management protocol). Each also contains an overview of switch capabilities.

Conventions

This manual uses the following conventions for instructions and information:

- Information you enter (console commands and input parameters) is shown in **bold Courier 8** font and requires a space between the operator and switch attribute.
- Input and output parameters are shown in [Square Brackets].
- Input definitions are shown in <anglebrackets>, as joined text and not case sensitive.
- Filter flags </s> (summary) or </d> (detail) are available with certain show commands and apply to different information viewing levels. Filter flags require a space between them and the full command. The /s option is the same as the standard default option; the /d option provides additional details. For example:

```
switch_prompt # show client /s
ClientNumber(ALL)
Client Type      IP Address      Server Type  Server Conn  Status
=====
  1  LANE    90.1.1.186    LECS        Established  Operational
  3  IP/ATM  90.1.1.124    Local        Established  Operational
switch_prompt #

switch_prompt # show client /d
ClientNumber(ALL)
LANE Client 1
=====
Client State      : Operational
Client Address    : 39:00:00:00:00:00:00:00:00:14:15:00:00:20:D4:14:15:00:00
LAN Name         : elan1
LECS Addr Source : ILMI
LECS Address      : 39:00:00:00:00:00:00:00:00:14:15:00:00:20:D4:14:15:00:01
LES Address       : 39:00:00:00:00:00:00:00:00:14:15:00:00:20:D4:14:15:00:02
LAN Type         : 802.3
MTU              : 1516
IP Address       : 90.1.1.186
IP NetMask       : 255.255.255.0
IP/ATM Client 3
=====
Client State      : Operational
Client Address    : 39:00:00:00:00:00:00:00:00:14:15:00:00:00:5A:01:01:7C:00
Server           : is local
Server Connection : Established
MTU              : 9180
IP Address       : 90.1.1.124
```


Abbreviations

Pay attention to how switch attributes appear in section headings of Chapter 2. Switch attributes are not case sensitive, but you must spell them correctly. For example, if the heading states BUSStat, you must enter **busstat** and not **busstats**.

```
switch_prompt # show busstats
Command busstats not Valid for Action show
Type Help <command> for help
switch_prompt #

switch_prompt # show busstat
ELANNumber(ALL)                               :
BUS ELANs
=====
ELAN ELAN000 Statistics
  Out Octets           : 0
  Out Unicast          : 0
switch_prompt #
```

You can, however, abbreviate the switch attribute to the extent it is unique. For example, instead of entering **show porttrafficcongestion**, you can just enter **show porttt**. You can do the same with operators. For example, instead of entering **modify**, you can enter **mod**. You should enter at least three characters for any operator. For example:

```
switch_prompt # modify portmode
PortNumber(ALL)                               :
PortMode(SONET)                              :
switch_prompt #

switch_prompt # mod portm
PortNumber(ALL)                               :
PortMode(SONET)                              :
switch_prompt #
```

If you enter part of a command, and that part is not unique, the console displays a numbered list of possible matching commands. For example, entering **show pnnin** is ambiguous because there are several commands that start with “pnnin.” In response, the console displays a list of possible commands:

```
switch_prompt # show pnnin
Objects beginning with pnnin for action show
0   :   PnniNeighbor
1   :   PnniNetworkLink
2   :   PnniNetworkNode
3   :   PnniNode
4   :   PnniNodeTimer
( # ) Command ( Q ) uit? :
```

Help Options

The console provides several levels of help for console commands. For example, to list the switch attributes that can be used with a particular operator, enter the word **help** (or **?**) followed by the operator.

```
switch_prompt # help add
HELP ----      add
=====
add            [ Alias | ATMRoute | BUSELAN | Community | ELAN | Interface |
                IPATMClient | IPATMPVC | LANEClient | LECSELAN | LECSELANLEC |
                LECSTLVSET | LESELAN | NetPrefix | PnniMetrics |
                PnniSummaryAddress | PVC | Route | ServiceRegistry |
                TrafficDescriptor | TrapCommunity ]
```

To get an explanation of a command and its parameters, enter the word **help** (or **?**) before the command.

```
switch_prompt # ? add laneclient
Create LANE Client
=====
ClientNumber      Local Client Number (0-127)
LanName           Name of the ELAN to join
ServerType        Type of LANE Server [LECS, LES]
ServerAddress     ATM Address of the LANE Server
IPAddress         IP Address of the Client
NetMask           IP Netmask of the Client
MTU               MTU for the Client [1516, 9234, NONE]
```

While entering a command, you can get help about an input parameter. To do so, enter a question mark (?) at the parameter prompt.

```
switch_prompt # add atmroute
PortNumber(Al)           : 1a3
AtmAddress()             : 39:00:00:00:00:00:00:00:00:00:14:72:80
PrefixLength(104)       :
Index(0)                 :
Type(Internal)           : ?
The type of reachability. Use Internal, Exterior, or Reject.
Type(Internal)           : exterior
Scope(0)                 :
MetricsTag(0)            :
Switch 4 #
```



Note Press the Esc key to back out of any command before you enter the last value.

Switch Attribute Entries

Each switch attribute has an entry in Chapter 2. The entry starts with the attribute name and a brief explanation of the attribute's purpose.



Note A few switch attributes apply to the SmartSwitch 6500 only. Those attributes are indicated in Chapter 2 by the following notation after attribute name: **(SmartSwitch 6500 Only)**. If that notation does not appear, the attribute applies both to the SmartSwitch 2500 family and to the SmartSwitch 6500.

After the attribute name and explanation, each attribute entry in Chapter 2 has the following sections: Operators, Parameters, Descriptions, and Examples.

Operators

If an attribute requires operators, they are listed under an “Operators” heading. Following is a list of all possible switch operators. If an operator has an alias, it is shown in parenthesis.

Table 1-1 List of Operators

Operator	Action
add (create)	Adds new object
activate	Activates an existing but deactivated object
backup	Backs up switch configuration
clear	Clears (initializes to 0) properties of an object
disable	Lowers privilege level
deactivate	Deactivates an existing object
delete (remove)	Deletes existing object
enable	Raises privilege level
flush	Flushes all entries
modify (set)	Sets properties of an existing object
restart	Restarts LANE clients
restore	Restores switch configuration
setup	Sets up switch
show (display)	Shows properties of an object
start	Starts an object

Table 1-1 List of Operators (Continued)

Operator	Action
stop	Stops an object
update	Upgrades firmware

Parameters

Most switch attributes have input or output parameters (or both). If an attribute has parameters, they are listed in tables under a “Parameters” heading. You enter input parameters at the console command line. You view output parameters at the console screen after the command executes. Some input parameters have default values (shown in parenthesis). You do not need to type an entry if you accept the default.

Following is an example of the format of input and output parameter tables.

Input Parameter	Description	Value/Field Size	Default
[ATMAddress]	ATM address assigned to the port.	13-20 byte hex-based format separated by colons.	No default
[ClientNumber]	Number of the client. Each client on the switch must have a unique client number. Client numbers are shared between LAN emulation (LANE) and IP/ATM (IP over ATM) clients.	0 to 127, or All	All
[InterfaceType]	Interface type advertised by the port.	Private, Public	Private
[SigRole]	Signaling role of the port. Other is used only for autoConfig and pnni10.	Network, Other, User	Other

In the output parameter table below, **</d>** indicates parameters available only in detailed display mode. To view the display for these parameters, type **/a** after the attribute in the command string (for example: **operator attribute /a**).

Output Parameter	Description
[Port ID]	Same as the [PortNumber] input parameter.
[Intf Type]	Same as the [InterfaceType] input parameter.
[Sig Role] </d>	Signaling role of the port.
[Client Address] </d>	ATM address of the client.

Descriptions

A “Descriptions” section follows parameters. The descriptions section shows command syntax (operator, attribute, and input parameters). It also gives additional information on what the command does and how to use it. Finally, the descriptions section indicates the privilege level required to use the command (Read Only, Administrator, or All). Administrator privilege level is necessary for actions other than viewing output displays. All means any user has complete access to command features.

Operator	Parameters/Permissions	Description
show clientvc	[ClientNumber] <clientnumber> All	Displays client ARP mapping details. In addition, it displays VC details for local IP/ATM or LANE clients. For IP/ATM, the associated IP address appears; for LANE, the associated MAC address appears. (The associated address is what is located at the other end of the VC.)

Examples

Examples are copied exactly from the switch console. They show how you enter console commands at the switch prompt (for example: **modify buselan**). The other bold text (**1**, **103**, **pvc**, **802.5**, **4544**) is input parameter values. Text in brackets immediately following each parameter field indicates the current default (for example: `ELANType(802.3)`).



Note With the exception of port numbering (**1a1**, **2b2.3**, and so forth), most of the console displays are identical for both the SmartSwitch 2500 family and the SmartSwitch 6500. If the displays are not identical, the differences are noted in the examples.

```
switch_prompt # modify buselan (console command)
ELANNumber(0)      :103      (input entry)
ELANName(ELAN102)   :elan103 (input entry)
ConnectMethod(SVC)  :pvc     (input entry)
ELANType(802.3)     :802.5   (input entry)
Multipoint(YES)     :         (accept default)
MTU(1516)           :4544   (input entry)
switch_prompt #

switch_prompt # show buselan
ELANNumber : 103

ELAN : elan103
ELAN Number      : 103
ELAN Name        : elan103
ATM Address      : 39:00:00:00:00:00:00:00:20:D4:14:15:00:00:20:D4:14:15:66:02
Max Frame Size   : 4544
Connection Method : PVC
Distribute VPI/VCI: 0/50
LAN Type         : 802.5
Multipoint       : YES
```

Port Numbering

Port numbering for the SmartSwitch 6500 is different from that for the SmartSwitch 2500 family. For the SmartSwitch 6500, physical port numbering uses the following format:

slot number I/O module letter port number

For example, port 3 of I/O module A on the TSM in slot 5 is represented by: **5a3**

For the SmartSwitch 2500 family, physical port numbering does not use slot numbers. Physical port numbering for the SmartSwitch 2500 family uses the following format:

I/O module letter port number

For example, port 3 of module A is represented by: **a3**

Both the SmartSwitch 2500 family and SmartSwitch 6500 support virtual ports. Virtual ports are designated by a period followed by the virtual port number (which both are appended to the physical port number). For example, for the SmartSwitch 6500, virtual port 2 on physical port **7b1** is represented as: **7b1.3**

For the SmartSwitch 2500 family, virtual port 2 on physical port **c3** is represented as: **c3.2**

List of Operators and Switch Attributes

Following is a list of switch attributes used with operators. If an operator has an alias, it is shown in parenthesis.



Note

A small group of attributes does not require operators and can function as standalone commands. Those attributes are: **exit**, **history**, **passwd**, **reboot** and **shutdown**. In addition, several attributes apply to the SmartSwitch 6500 only. In the following lists, attributes that apply to the SmartSwitch 6500 only are indicated by an asterisk (*).

add (create)

Alias	AtmFilter	AtmFilterSet	ATMRoute
BUSELAN	Community	ELAN	IPATMClient
IPATMPVC	LANEClient	LECSELAN	LECSELANLEC
LECSELANNameTable	LECSELANPolicy	LECSNeighbor	LECSELANPacketSizes
LECSTLVSET	LESELAN	NetPrefix	PnniMetrics
PnniNode	PnniSummaryAddress	PnniTnsRoute	Port
PortFilterSet	PVC	PVP*	Route

ServiceRegistry	Spvc	SpvcAddress	Spvp*
TrafficDescriptor	TrapCommunity		

delete (remove)

Alarms	Alias	AtmFilter	AtmFilterSet
ATMRoute	BUSClient	BUSELAN	Client
Community	ELAN	Events	IPATMPVC
LECSELAN	LECSELANLEC	LECSELANNameTable	LECSELANPolicy
LECSErrorLog	LECSNeighbor	LECSPacketSizes	LECSTLVPARAM
LECSTLVSET	LESCliet	LESELAN	NetPrefix
PnniMetrics	PnniNode	PnniSummaryAddress	PnniTnsRoute
Port	PortFilterSet	PVC	PVCById
PVP*	PVPById*	Route	ServiceRegistry
Spvc	SpvcAddress	Spvp*	TrafficDescriptor
TrapCommunity			

modify (set)

622LoopBack	AlarmDisplay	Alias	AtmFilter
AtmFilterSet	BUSELAN	BUSType	CACEqBwAllocScheme
CACServiceClassBw	ConsoleTimeout	CoreDump	DS3E3LoopBack
EventDisplay	IlmiConfig	IpAddress	IPATMClient
LANEClient	LECSELAN	LECSELANLEC	LECSELANPolicy
LECSErrorLogControl	LECSTLVSet	LESELAN	LNNIInfo
LNNIStatus	MyNmAddr	NetworkClock	PnniInterface

PnniNode	PnniNodeTimer	PnniPeerGroupId	PnniPgIElection
PnniScopeMapping	PortClockMode	PortConfig	PortFilterSet
PortMode	PortTrafficCongestion	Prompt	RedundancyInfo
RedundancyOff*	RedundancyOn*	Rows	SigTimer
SpvcCallFailuresTrapEnable	SpvcNotifyInterval	SpvcRestart	SpvpRestart*
SSCOPConfig	SwitchConfig	SwitchName	SwitchTrafficCongestion
TrustedNMS			

show (display)

622LoopBack	AlarmDisplay	Alarms	Alias
AtmFilter	AtmFilterSet	ATMRoute	BUSClient
BUSELAN	BUSErrorLog	BUSLECStat	BUSStat
CACEqBwAllocScheme	CACInfo	CACPortBw	CACServiceClassBw
CACStatistics	Client	ClientARP	ClientStat
ClientVC	Community	ConsoleTimeout	CoreDump
DS3E3LoopBack	ELAN	ElanMcast	EventDisplay
Events	IlmiConfig	IPATMARF	IPATMPVC
IPATMStats	LECMcast	LECS	LECSELAN
LECSELANLEC	LECSELANNameTable	LECSELANPolicy	LECSErrorLog
LECSErrorLogControl	LECSNeighborInfo	LECSPacketSizes	LECSServerList
LECStats	LECSTLVSet	LECSVcc	LES
LESARP	LESCient	LESELAN	LESErrorLog
LESLECStat	LESLNNIInfo	LESLNNIStat	LESStat
LNNIInfo	LNNIStatus	McastClients	MinMaxTableIndex

MyNmAddr	NetPrefix	NetworkClock	PnniInterface
PnniLink	PnniMetrics	PnniNeighbor	PnniNetworkLink
PnniNetworkNode	PnniNode	PnniNodeTimer	PnniPglElection
PnniPtse	PnniReachableAddress	PnniScopeMapping	PnniStats
PnniSummaryAddress	PnniSvccRcc	PnniTnsRoute	PortClockMode
PortConfig	PortFilterSet	PortMode	PortStats
PortTrafficCongestion	Privilege	PVC	PVP*
RedundancyInfo*	RedundancyStatus*	Route	SARStats
ServiceRegistry	SigStatistics	SigTimer	SlotConfig*
Spvc	SpvcAddress	SpvcBase	SpvcFailed
SpvcTarget	Spvp*	SpvpFailed*	SpvpTarget*
SSCOPConfig	SSCOPStatistics	SVC	SVCById
SwitchConfig	SwitchTrafficCongestion	TrafficDescriptor	TrapCommunity
TrustedNMS			

activate/deactivate

Client	PVC	PVCById	PVP*
PVPById*			

backup/restore

Switch

clear

Alias	BUSErrorLog	BUSStat	CACStatistics
-------	-------------	---------	---------------

Config	LESErrorLog	LECSLNNIStat	LESStat
PortStats	PVC	PVP*	

disable/enable

Privilege

execute

CpuSwitchover*	CsmSwitchover*
----------------	----------------

flush

Alias	Config	PVC	PVP*
-------	--------	-----	------

restart

Client

setup

Switch

start

LECS	LES	Ping
------	-----	------

stop

LECS	LES
------	-----

update

Firmware

2 CONSOLE COMMANDS



Note

A few switch attributes apply to the SmartSwitch 6500 only. For those attributes, the following appears below the attribute name: **(SmartSwitch 6500 Only)**. If this notation does not appear, the attribute applies to both the SmartSwitch 2500 family and to the SmartSwitch 6500.

622LoopBack

Use 622LoopBack to set or display loopback on 622 Mbps (OC-12/STM-4) ports.



Note

A port in loopback mode does not pass normal traffic.

Operators

modify, show

Parameters

Input Parameter	Description	Value/Field Size	Default
[PortNumber]	Port number on the switch.	A1 to B4 (2500 family), 1A1 to 8B4 (6500), or All	No default
[Loopback]	Loopback mode (see Table 2-1).	None, Facility, Equipment, Diag	None

Output Parameter	Description
[PortNumber]	Physical port number on the switch.
[Type]	Type of port.
[Loopback]	Loopback mode. Possible values are None, Facility, Equipment, or Diag (see Table 2-1).

Descriptions

Operator	Parameters/Permissions	Description
modify 622loopback	[Port] <port> [Loopback] <loopback> Administrator	Sets loopback for 622 Mbps ports.
show 622loopback	Administrator	Shows loopback status for 622 Mbps ports.

Table 2-1 OC-12/STM-4 Port Loopback Modes

Mode	Description
None	Loopback is not enabled.
Facility	The data stream is received from the network, has the overhead bits reinserted, and is retransmitted back to the network.
Equipment	Connects the transmitter to the receiver. The data stream received from the line is retransmitted back out the line. Cells generated by the switch to this port are not sent over the line.
Diag	Connects the receiver to the transmitter. The data stream transmitted by the switch to a port is looped back to the switch.

Examples

```

switch_1 # show 622loopback
Port(ALL)
  Port      Type      Loopback
=====
1A1        622      None

switch_1 # set 622loopback
Port()      : 1a1
Loopback(None) : Facility

switch_1 # show 622loopback
Port(ALL)
  Port      Type      Loopback
=====
1A1        622      Facility

switch_1 #

```

AlarmDisplay

Use AlarmDisplay to enable/disable the display of alarm messages at the console.



Note Use Alarms to display the alarms currently logged.

Operators

modify, show

Parameters

This attribute has no output parameters.

Input Parameter	Description	Value/Field Size	Default
[AlarmDisplay]	Toggles the display On or Off.	On, Off	

Descriptions

Operator	Parameters/Permissions	Description
modify alarmdisplay	[AlarmDisplay] <alarmdisplay> Administrator	Toggles display of alarm messages on the console screen.
show alarmdisplay	Administrator	Displays status of alarms display.

Examples

```
switch_prompt # show alarmdisplay
Alarm Display is OFF

switch_prompt #

switch_prompt # modify alarmdisplay
AlarmDisplay[OFF] : on

switch_prompt #

switch_prompt # show alarmdisplay
Alarm Display is ON

switch_prompt #
```

Alarms

Use Alarms to display or delete alarms currently logged.



Note Up to 40 alarms are persistent on reboot (remain in log). No events are persistent on reboot.

Operators

delete, show

Parameters

This attribute has no output parameters.

Input Parameter	Description	Value/Field Size	Default
[Index]	The index(es) of the alarms you want to display or delete.	Positive integer or All	All

Descriptions

Operator	Parameters/Permissions	Description
delete alarms	[Index] <index> Administrator	Deletes an alarm or all alarms.
show alarms	[Index] <index> All	Displays alarm(s) currently logged. Alarm information includes message index number, alarm ID, message text, severity, and a timestamp (time the alarm occurred, with respect to switch up-time in hours, minutes, seconds, and milliseconds).

Examples

```
switch_prompt # show alarms  
Index(ALL) :  
0 33554652 000:00:32:238
```

LECS Operational

```
switch_1 # delete alarms  
Index(ALL) :
```

```
switch_1 # show alarms  
Index(ALL) :
```

Alias

Use Alias to manage aliases for console commands. You can use up to 15 aliases.



Note The alias **ping** is present when the switch is shipped from the factory (**ping** is an alias for **start ping**).

Operators

add, delete, flush, modify, show

Parameters

Input Parameter	Description	Value/Field Size	Default
[AliasName]	Alias name.	Single word (no spaces) of alphanumeric characters.	No default
[AliasedString]	Console command to which alias applies.	Any valid combination of operator and attribute (for example, show events). The aliased string may not contain another alias.	No default

Output Parameter	Description
[Index]	Sequence number assigned to alias by console.
[Alias Name]	Same as the [AliasName] input parameter.
[Aliased Command]	Same as the [AliasedString] input parameter.

Descriptions

Operator	Parameters/Permissions	Description
add alias	[AliasName] <aliasname> [AliasedString] <aliasedstring> Administrator	Creates an alias. You can have up to 15 active aliases (including ping).

Operator	Parameters/Permissions	Description
delete alias	[AliasName] <aliasname> Administrator	Deletes an alias.
flush alias	Administrator	Deletes all aliases (including ping).
modify alias	[AliasName] <aliasname> [NewAliasedString] <newaliasedsring> Administrator	Changes an alias.
show alias	[AliasName] <aliasname> Administrator	Displays all aliases.

Examples

```

switch_prompt # add alias
AliasName()                : spnni
AliasedString()            : show pnniinterface

switch_prompt #

switch_prompt # delete alias
AliasName()                : spnni
  spnni -> show pnniinterface
Confirm(y/n)?y

switch_prompt #

switch_prompt # flush alias
You are about to delete all aliases

Confirm(y/n)?y

switch_prompt #

switch_prompt # modify alias
AliasName()                : spnni
NewAliasedString()         : sp
Modifying Alias "spnni -> show pnniinterface" to "spnni -> sp"

Confirm(y/n)?y

switch_prompt #

```

```
switch_prompt # show alias
AliasName(ALL)
Alias List
=====
Index Alias Name           : Aliased Command
 1    PING                : Start Ping
 2    sp                   : show pnninode

switch_prompt #
```

AtmFilter

Use AtmFilter to manage ATM filters on the switch.

Operators

add, delete, modify, show

Parameters

Input Parameter	Description	Value/Field Size	Default
[AtmFilterName]	Name of the filter.	15-characters maximum	FILTERXXX, where XXX is the index.
[AtmFilterType]	Type of the filter.	Admit, Deny	
[SrcAtmAddress]	Source (calling party) address (for which this filter should be applied).	20-bytes maximum	
[SrcAtmAddressMask]	Mask of the source ATM address.	20-bytes maximum	Default mask is created from the SrcAtmAddress.
[DstAtmAddress]	Destination (called party) address (for which this filter should be applied).	20 bytes maximum	
[DstAtmAddressMask]	Mask of the destination ATM address.	20-bytes maximum	Default mask is created from the DstAtmAddress.

In the Output Parameter table below, (</d>) indicates parameters that are available only through the **show atmfilter /d** (detailed) command.

Output Parameter	Description
[FilterName]	Name of the ATM filter.
[FilterType]	Type of the ATM filter. Possible values are: Admit or Deny.
[TotalAdmits]	Number of calls that were acted on by this filter that have passed through.
[TotalDenies]	Number of calls that were acted on by this filter that have not passed through.
[ReferenceCount]	Number of filter sets that are using this filter.

Output Parameter	Description
[Src ATM Addr] </d>	Source (calling party) address for which the filter should be applied.
[Src Addr Mask] </d>	Mask of the source ATM address.
[Dst ATM Addr] </d>	Destination (called party) address for which the filter should be applied.
[Dst Addr Mask] </d>	Mask of the destination ATM address.

Descriptions

Operator	Parameters/Permissions	Description
add atmfilter	[FilterName] <filtername> [SrcAtmAddress] <srcatmaddress> [SrcAtmAddressMask] <srcatmaddressmask> [DstAtmAddress] <dstatmaddress> [DstAtmAddressMask] <dstatmaddressmask> [FilterType] <filtertype> Administrator	Adds an ATM filter.
delete atmfilter	[FilterName] <filtername> Administrator	Deletes an ATM filter.
modify atmfilter	[FilterName] <filtername> [SrcAtmAddress] <srcatmaddress> [SrcAtmAddressMask] <srcatmaddressmask> [DstAtmAddress] <dstatmaddress> [DstAtmAddressMask] <dstatmaddressmask> [FilterType] <filtertype> Administrator	Modifies an ATM filter.
show atmfilter	[FilterName] <filtername> Administrator	Displays ATM filters.

Examples

```

switch_prompt # add atmfilter
FilterName(FILTER1)                : allow_src_pfx
Src-ATMAddr()                     : 39:20:10:35:00:10
SrcAddrMask(FF:FF:FF:FF:FF:FF)    :
Dst-ATMAddr()                     :
DstAddrMask():                    :
FilterType()                       : admit

switch_prompt # add atmfilter
FilterName(FILTER2)                : bad_dst_pfx
Src-ATMAddr()                     :
SrcAddrMask():                    :
Dst-ATMAddr()                     : 39:00:28:10:00:F8
DstAddrMask(FF:FF:FF:FF:FF:FF):
FilterType()                       : deny

switch_prompt # add atmfilter
FilterName(FILTER3)                : bad_src_dst_pfx
Src-ATMAddr()                     : 39:14:67:EC:0D:F1:89:93:06
SrcAddrMask(FF:FF:FF:FF:FF:FF:FF:FF:FF:FF:FF:FF:FF:FF:FF:FF) :
Dst-ATMAddr()                     : 39:00:28:10:00:F8
DstAddrMask(FF:FF:FF:FF:FF:FF):
FilterType()                       : deny

switch_prompt # add atmfilter
FilterName(FILTER4)                : deny_host
Src-ATMAddr()                     : 39:14:67:EC:0D:F1:89:93:06:00:00:00:00:00:00:00:20:D4:01
SrcAddrMask(FF:FF:FF:FF:FF:FF:FF:FF:FF:FF:FF:FF:FF:FF:FF:FF:FF:FF) :
Dst-ATMAddr()                     :
DstAddrMask():                    :
FilterType()                       : Deny

switch_prompt # modify atmfilter
FilterName()                       : bad_src_dst_pfx
Src-ATMAddr(39:14:67:EC:0D:F1:89:93:06) :
SrcAddrMask(FF:FF:FF:FF:FF:FF:FF:FF:FF:FF:FF:FF:FF:FF:FF:FF) : FF:FF:FF:FF:FF:FF:FF:FF:00
Dst-ATMAddr(39:00:28:10:00:F8):
DstAddrMask(FF:FF:FF:FF:FF:FF):
FilterType(Deny)                   :

switch_prompt # delete atmfilter
FilterName()                       :deny_host

switch_prompt # show atmfilter
FilterName(ALL)                    :

FilterName      FilterType  TotalAdmits  TotalDenies  ReferenceCount
=====
allow_src_pfx   Admit      0            0            0
bad_dst_pfx     Deny       0            0            0
bad_src_dst_pfx Deny       0            0            0

```

```
switch_prompt # show atmfilter /d
FilterName(ALL) :
```

```
=====
Filter Name : allow_src_pfx
Src ATM Addr: 39:20:10:35:00:10
Src Addr Mask: FF:FF:FF:FF:FF:FF
Dst ATM Addr:
Dst Addr Mask:
Filter Type: Admit
Total Admits : 0
Total Denies : 0
Reference Count : 0
=====
Filter Name : bad_dst_pfx
Src ATM Addr :
Src Addr Mask :
Dst ATM Addr: 39:00:28:10:00:F8
Dst Addr Mask : FF:FF:FF:FF:FF:FF
Filter Type : Deny
Total Admits : 0
Total Denies : 0
Reference Count : 0
=====
Filter Name: bad_src_dst_pfx
Src ATM Addr: 39:14:67:EC:0D:F1:89:93:06
Src Addr Mask: FF:FF:FF:FF:FF:FF:FF:FF:00
Dst ATM Addr: 39:00:28:10:00:F8
Dst Addr Mask: FF:FF:FF:FF:FF:FF
Filter Type: Deny
Total Admits : 0
Total Denies : 0
Reference Count : 0
=====
```


AtmFilterSet

Use AtmFilterSet to manage an ATM filter set. An ATM filter set consists of one or more ATM filters. Each ATM filter set is assigned to a pair of ports, having one incoming port and one outgoing port (alternately, you can assign a filter set to all incoming or outgoing ports).

Operators

add, delete, modify, show

Parameters

Input Parameter	Description	Value/Field Size	Default
[FilterName]	Name of the filter to insert or remove from the filter set (used with modify atmfilterset only).		
[FilterSetName]	Name of the filter set.		
[Operation]	Operation to perform on the filter set (used with modify atmfilterset only).	Insert, Remove	No default

In the Output Parameter table below, (</d>) indicates parameters that are available only through the **show atmfilter /a** (detailed) command or if you specify a specific [FilterSetName]. In both cases, you get information about specific filters in the filter set.

Output Parameter	Description
[FilterSetName]	Name of the filter set.
[TotalAdmits]	Total admits associated with the filter set.
[TotalDenies]	Total denies associated with the filter set.
[ReferenceCount]	Reference count associated with the filter set.
[Priority] </d>	Priority of a filter in the filter set. (Priority is assigned in the order in which filters are added to the filter set; the first filter added becomes priority 1, the second priority 2 and so forth. If a filter is removed from the set, each lower priority filter has its priority adjusted upward one position. Filtering is done in order of priority; the priority 1 filter is used, then priority 2 filter, and so forth until all filters have been used.)
[FilterType] </d>	Type of a filter in the filter set.

Output Parameter	Description
------------------	-------------

(If /d or a specific [FilterSetName] is specified, you also get a breakdown of TotalAdmits, TotalDenies, and ReferenceCount for each filter in the set.)

Descriptions

Operator	Parameters/Permissions	Description
add atmfilterset	[FilterSetName] <filtersetname> [FilterName] <filtername> Administrator	Adds an ATM filter set.
delete atmfilterset	[FilterSetName] <filtersetname> [FilterName] <filtername> Administrator	Deletes an ATM filter set.
modify atmfilterset	[FilterSetName] <filtersetname> [Operation] <operation> [FilterName] <filtername> Administrator	Modifies an ATM filter set.
show atmfilterset	[FilterSetName] <filtersetname> [FilterName] <filtername> Administrator	Shows ATM filter sets.

Examples

```
switch_prompt # show atmfilter
```

```
FilterName(ALL) :
```

FilterName	FilterType	TotalAdmits	TotalDenies	ReferenceCount
filter2	Deny	0	0	0
filter3	Admit	0	0	0

```
switch_prompt # add atmfilterset
```

```
FilterSetName(SET1) :
```

```
FilterName() : filter2
```

```
FilterName() : filter3
```

```
FilterName() :
```

```
Created Filter Set (SET1) With 2 Filters
```

```
switch_prompt # show atmfilterset
```

```
FilterName(ALL) :
```

FilterSetName	TotalAdmits	TotalDenies	ReferenceCount
SET1	0	0	0

```
switch_prompt # modify atmfilterset
```

```
FilterSetName() : set1
```

```
Operation() : remove
```

```
FilterName() : filter2
```

```
switch_prompt # show atmfilterset
```

```
FilterName(ALL) : SET1
```

```
=====
```

```
Filter Set Name : SET1
```

```
Total Admits : 0
```

```
Total Denies : 0
```

```
Reference Count : 0
```

Priority	FilterName	FilterType	TotalAdmits	TotalDenies
1	filter3	Admit	0	0

```
switch_prompt #
```

ATMRoute

Use ATMRoute to manage routes to reachable addresses from the switch.



Note The following applies to SmartSwitch 6500 only: You can hot-swap TSMs. Hot-swapping is replacing a module when the chassis is powered up. If you replace a TSM with another TSM of the same type (same I/O ports), existing configuration of port parameters is not affected. This includes parameters set using any of the following attributes: ATMRoute, CACServiceClassBw, IlmiConfig, NetPrefix, Port, PortConfig, PVC, PVP, ServiceRegistry, SigTimer, SigStatistics, SSCOPConfig, and SSCOPStatistics. If you replace a TSM with another TSM of a different type, existing configuration of port parameters is deleted. The deletion occurs when the new module is plugged into the chassis backplane.

Operators

add, delete, show

Parameters

Input Parameter	Description	Value/Field Size	Default
[Num]	Index number of the route as assigned by the console. Use the show atmroute all command to get a list of index numbers.	Positive integer	All
[PortNumber]	Port number on the switch. You can specify a physical or virtual port.	A1 to B4 (physical-2500 family), A1.n to B4.n (virtual-2500 family), 1A1 to 8B4 (physical-6500), 1A1.n to 8B4.n (virtual-6500), or All	All
[AtmAddr]	Address prefix of the ATM end system.		No default
[PrefixLength]	Length in bits to apply to the address prefix.		No default
[AddressIndex]	Index into the set of listings of connectivity to the address prefix.		0
[Type]	Type of reachability from the switch to the address prefix.	Exterior, Internal, Reject	Internal

Input Parameter	Description	Value/Field Size	Default
[Scope]	PNNI scope of advertisement (level of PNNI hierarchy) from the switch to the address prefix.	Integers from 0-104	0
[MetricsTag]	Index into listing of traffic parameters that apply to connectivity from the switch to the address prefix. If there are no parameters associated with this address prefix, then zero is used.		0
[Advertising]	Whether or not the local switch should advertise the address into the PNNI domain. For example, use Yes for an end station address and No for an IISP route.	Yes, No	No

**Note**

If you hot-swap a TSM with a TSM of a different type (different I/O ports), routing information associated with ports on the original TSM is deleted. Before you insert a replacement TSM, you can display existing routing information using the **show** operator with the **/o** option (for example: **show atmroute /o**).

Output Parameter	Description
[Num]	Index number of the route as assigned by the console.
[Port]	Same as [PortNumber] input parameter.
[ATM Address]	Same as [ATMAAddr] input parameter.
[Protocol]	Routing mechanism used to determine connectivity between the switch and the reachable address prefix. Possible values are Other, Local, Mgmt, and PNNI.
[Advertising Node Id]	Identifier of the node advertising reachability to the address prefix.
[Advertising Port Id]	Identifier of the port used from the advertising node to reach the given address prefix.
[PNNI Scope]	PNNI scope of advertisement (level of PNNI hierarchy) of reachability from the switch to the address prefix.
[VP Capability]	Indicates whether or not VPCs can be established from the advertising node to the reachable address prefix.

Output Parameter	Description
[Metrics Tag]	Index into the listing of traffic parameter values that apply for connectivity between the switch and the reachable address prefix.
[Ptse Id]	For reachable addresses learned through PNNI, this parameter contains the value of the PTSE identifier for the PTSE that is originated by the originating node and contains the information group(s) describing the reachable address. For reachable addresses learned by means other than PNNI, this parameter is set to zero.
[Advertising]	Whether or not the local switch advertises the local address into the PNNI domain. Possible values are: Yes and No.
[Oper Status]	Whether or not the reachable address prefix is operationally valid and whether it is advertised by this node. Possible values are: Advertised, Active, and Inactive.

Descriptions

Operator	Parameters/Permissions	Description
add atmroute	[PortNumber] <portnumber> [ATMAddr] <atmaddress> [PrefixLength] <prefixlength> [AddressIndex] <addressindex> [Type] <type> [Scope] <scope> [MetricsTag] <metricstag> Administrator	Adds a route to a reachable address from the switch.
delete atmroute	[PortNumber] <portnumber> [ATMAddr] <atmaddress> [PrefixLength] <prefixlength> [AddressIndex] <index> Administrator	Deletes a route to a reachable address from the switch.
show atmroute	All	Displays the configured routes from the switch.

Examples

```
switch_prompt # show atmroute
Num(ALL)
```

```

Num  Port Number ATM Address                                     Type Proto
=====
1    CPU          39:00:00:00:00:00:00:00:00:00:a3:87:0b:00:00:1d:a3:87:0b I  MGMT
2    CPU          39:00:00:00:00:00:00:00:00:00:a3:87:0b:00:00:64:01:01:16 I  MGMT
3    --          39:00:00:00:00:00:00:00:00:00:a3:87:0b:00:20:d4:28:c1:ff I  MGMT
4    CPU          47:00:79:00:00:00:00:00:00:00:00:00:00:00:00:00:a0:3e:00:00:01 I  MGMT
```

switch_prompt #

```
switch_prompt # add atmroute
PortNumber()           : 7a3
AtmAddress()           : 20:01:02:03
PrefixLength(32)       :
AddressIndex(0)        :
Type(Internal)         :
Scope(0)               :
MetricsTag(0)          :
Advertising(NO)        :
```

```
switch_prompt # show atmroute
Num(ALL)               :
```

Num	Port	Number	ATM Address	Type	Proto
1	7A3		20:01:02:03	I	MGMT
2	CPU		39:00:00:00:00:00:00:00:00:00:00:00:a3:87:0b:00:00:1d:a3:87:0b	I	MGMT
3	CPU		39:00:00:00:00:00:00:00:00:00:00:00:a3:87:0b:00:00:64:01:01:16	I	MGMT
4	--		39:00:00:00:00:00:00:00:00:00:00:00:a3:87:0b:00:00:d4:28:c1:ff	I	MGMT
5	CPU		47:00:79:00:00:00:00:00:00:00:00:00:00:00:00:00:00:a0:3e:00:00:01	I	MGMT

```
switch_prompt # delete atmroute
AtmAddress()           : 20:01:02:03
PrefixLength(32)       :
AddressIndex(0)        :
```

```
Route Address Num 0
=====
Node Index           : 1
Port Number          : 7A3
ATM Address          : 20:01:02:03:00:00:00:00:00:00:00:00:00:00:00:00:00:00:00:00
Prefix Length        : 32
Address Index        : 0
Advertising Node: 50:a0:39:00:00:00:00:00:00:00:00:00:00:00:a3:87:0b:00:20:d4:28:c1:ff
:00
Advert Port Id       : 29634560
Type                 : Internal
Protocol              : MGMT
PNNI Scope           : 0
VP Capability         : False
Metrics Tag          : 0
Ptse Id              : 0
Advertising           : No
Oper Status          : Active
```

The ATM route was deleted successfully.

switch_prompt #

BUSClient

Use BUSClient to display or delete LANE clients connected to a BUS. Each LANE client is identified uniquely by its LEC ID.

Operators

delete, show

Parameters

Input Parameter	Description	Value/Field Size	Default
[ELANNumber]	Number of the ELAN to which the BUS belongs.	0-125	0
[LECID]	LEC ID of the specified client.	1-65279	0
[ATMAddress]	ATM address of the client.		No default

Output Parameter	Description
[LECID]	LEC identification number of the specified client.
[VPI/VCI]	VPI/VCI (virtual path/channel identifier) values of control direct VCC (virtual channel connection) or multicast send VCC.
[ATM Address]	ATM address of the client.

Descriptions

Operator	Parameters/Permissions	Description
delete busclient	[ELANNumber] <elannumber> [LecID] <lecidvalue> Administrator	Removes a specified client from the BUS on the specified ELAN.
show busclient	[ELANNumber] <elannumber> All	Displays information about all clients that have joined the BUS on the specified ELAN.

Examples

```
switch_prompt # delete busclient
ELANNumber(0) :
LECIId(0)      : 14
ATMAddress     : 39:00:00:00:00:00:00:00:20:D4:14:11:80:00:20:D4:00:D6:C0:00
Confirm(y/n)? : y
switch_prompt #

switch_prompt # show busclient 0

Client table entries for ELAN ELAN000

=====

LECIId      : 1
VPI/VCI     : 0/219
ATM Address  : 39:00:00:00:00:00:00:00:20:D4:14:2F:00:00:20:D4:14:2F:00:00
switch_prompt #
```

BUSErrorLog

Use BUSErrorLog to display or clear the BUS error log associated with an ELAN.



Note Use the `add buselan` or `modify buselan` commands to enable or disable the BUS error log for a specified ELAN.

Operators

`clear`, `show`

Parameters

Input Parameter	Description	Value/Field Size	Default
[ELANNumber]	The number of the ELAN whose BUS errors are to be shown or deleted.	0-125	All

Output Parameter	Description
[ATM Address]	ATM address associated with the error.
[ErrorCode]	Decimal code that shows why the error occurred (see Table 2-2).
[SysUpTime]	Time the error occurred with respect to switch up-time in hours, minutes, and seconds.

Descriptions

Operator	Parameters/Permissions	Description
<code>delete buserrorlog</code>	[ELANNumber] <code><elannumber></code> Administrator	Clears the BUS error log.
<code>show buserrorlog</code>	Administrator	Displays the BUS error log.

Table 2-2 BUSErrorLog Error Codes

Code	Name	Meaning
0	Success	Successful response.
1	Insufficient resources to grant request	Responder is unable to grant request for reasons such as insufficient table space or ability to establish VCCs.
2	Bad control frame	Malformed control frame or bad control request.
3	Bad data frame	Malformed data frame (too big or too small).
4	Others	All other events.

Examples

```

switch prompt # show buserrorlog
ELANNumber(ALL)                               : 1

Error Log Entries for VLAN : 1

ATM Address                                     ErrorCode SysUpTime
39:1:2:3:4:5:6:7:8:9:0:1:2:3:4:5:6:7:8:9    22          01:02:03

switch prompt # clear buserrorlog
ELANNumber(ALL)                               : 1

Clear BUS ELAN 1 Error Log

Confirm (Y/N) : Y

switch prompt # show buserrorlog
ELANNumber(ALL)                               : 1

Error Log Entries for VLAN : 0

switch prompt #

```

BUSELAN

Use BUSELAN to manage characteristics of a BUS for a specified ELAN. If an LES corresponding to the BUS exists, the characteristics of the BUS should match those of the LES.

Operators

add, delete, modify, show

Parameters

Input Parameter	Description	Value/Field Size	Default
[ELANNumber]	Number of the ELAN to which the BUS belongs.	0-125 or All	All
[ELANName]	Name of the ELAN to which the BUS belongs.	Up to 32 characters	
[ConnectMethod]	Type of connection used.	PVC, SVC	SVC
[ELANType]	Data-link type used by the ELAN.	802.3 (Ethernet), 802.5 (TokenRing)	802.3
[Multipoint]	Indicates whether control distribute VCC is PMP (point-to-multipoint) or PTP (point-to-point).	Yes: VCC is PMP No: VCC is PTP	Yes
[MTU]	Maximum transfer unit assigned for this client.	1516, 1580, 4544, or 9234	1516
[ErrorLogEnable]	Whether or not BUS error log is enabled.	Yes, No	No
[MinimumTDEnable]	Whether or not minimum acceptable traffic descriptor negotiation is enabled.	Yes, No	No
[ForwardPeakCellRate]	Minimum forward peak cell rate.	Positive integer	

Output Parameter	Description
[ELAN Number]	Number of the ELAN to which the BUS belongs.
[ELAN Name]	Name of the ELAN to which the BUS belongs.

Output Parameter	Description
[ATM Address]	ATM address of the ELAN.
[Max Frame Size]	Maximum transfer unit assigned for this client. (Same as the [MTU] input parameter.)
[Connection Method]	Type of connection used. (Same as the [ConnectMethod] input parameter.)
[Distribute VPI/VCI]	VPI/VCI values of control direct VCC or multicast send VCC.
[ELAN Type]	Data-link type used by the ELAN.
[Multipoint]	Indicates whether control distribute VCC is PMP (point-to-multipoint) or PTP (point-to-point).
[Error Logging]	Whether or not BUS error log is enabled.
[Min TD Negotiation]	Whether or not minimum TD negotiation is enabled.

Descriptions

Operator	Parameters/Permissions	Description
add buselan	[ELANNumber] <elannumber> [ELANName] <elaname> [ConnectMethod] <connectmethod> [ELANType] <elantype> [Multipoint] <distributevcctpe> [MTU] <maximumframesize> [ErrorLogEnable] <errorlogenable> [MinimumTDEnable] <minimumtdenable> [ForwardPeakCellRate] <forwardpeakcellrate> Administrator	Creates a BUS on a specified ELAN. If the corresponding LESELAN exists, then the added BUSELAN should have similar characteristics.
delete buselan	[ELANNumber] <elannumber> Administrator	Removes the BUS from a specified ELAN and drops clients connected to it.
modify buselan	[ELANNumber] <elannumber> [ELANName] <elaname> [ConnectMethod] <connectmethod> [ELANType] <elantype> [Multipoint] <distributevcctpe> [MTU] <maximumframesize> [ErrorLogEnable] <errorlogenable> [MinimumTDEnable] <minimumtdenable> [ForwardPeakCellRate] <forwardpeakcellrate> Administrator	Changes the behavior of the BUS parameters for a specified ELAN. The specified ELAN is then deleted and recreated. If the corresponding LESELAN exists, then the modified BUSELAN should have the same characteristics as that existing LESELAN because their parameters need to match.

Operator	Parameters/Permissions	Description
show	[ELANNumber] <elannumber>	Displays the BUS parameters for the specified ELAN. Enter show buselan to confirm that changes you made.
buselan	All	

Examples

```
switch_prompt # add buselan
ELANNumber(0) : 102
ELANName(ELAN102) :
ConnectMethod(SVC) :
ELANType(802.3) :
Multipoint(YES) :
MTU(1516) :
ErrorLogEnable(NO) :
MinimumTDEnable(NO) :
ForwardPeakCellRate() :

switch_prompt #

switch_prompt # delete buselan
ELANNumber(0) : 3
ELAN Number : 3
ELAN Name : ELAN003
ATM Address : 39:00:00:00:00:00:00:00:20:D4:14:15:00:00:20:D4:14:15:03:02
Confirm(y/n)? : y

switch_prompt #
```

The example below changes ELAN102 from an Ethernet BUSELAN to a Token Ring BUSELAN, changing the MTU to reflect the change in ELAN type. It assumes the LES has already been changed.

```
switch_prompt # modify buselan 102
ELANName(ELAN102)                :
ConnectMethod(svc)                :
ELANType(802.3)                   : 802.5
Multipoint(yes)                   :
MTU(1516)                         : 4544
ErrorlogEnable(NO)                :
MinimumTDEnable(NO)               :

switch_prompt #

switch_prompt # show buselan 102

ELAN: ELAN102

ELAN Number           : 102
ELAN Name             : ELAN102
ATM Address           : 39:00:00:00:00:00:00:20:D4:14:15:00:00:20:D4:14:15:66:02
Max Frame Size        : 4544
Connection Method     : SVC
Distribute VPI/VCI    : 0/2423
Sel.DistributeVPI/VCI : 0/2423
ELAN Type             : 802.5
Multipoint            : YES
Error Logging         : NO
Min TD Negotiation    : NO

switch_prompt #
```

BUSLECStat

Use BUSLECStat to display traffic statistics for clients connected to a BUS.

Operator

show

Parameters

Input Parameter	Description	Value/Field Size	Default
[ELANNumber]	Number of the ELAN to which the BUS belongs.	0-125 or All	All
[LECID]	LEC identification number of the specified client.	0-65279	0

Output Parameter	Description
[LECID]	LEC identification number of the specified client.
[ATMAddress]	ATM address of the client.
[Receives]	Number of multicast and broadcast and unknown forward requests received by the BUS from this LEC.
[Forwards]	Number of requests forwarded by the BUS from this LEC.
[Discards]	Number of requests discarded by the BUS from this LEC.

Descriptions

Operator	Parameters/Permissions	Description
show buslecstat	[ELANNumber] <elannumber> [LECID] <lecidvalue> All	Displays statistical information about a specific client or all clients on that ELAN.

Examples

```
switch_prompt # show buslecstat  
ELANNumber(0)  :  
LECId(0)       :
```

```
Client statistics for ELAN ELAN000  
=====
```

LECId	: 1
ATM address	: 39:00:00:00:00:00:00:20:D4:14:2F:00:00:20:D4:14:2F:00:00
Receives	: 17185
Forwards	: 17185
Discards	: 0

```
switch_prompt #
```

BUSStat

Use BUSStat to display or clear statistics of a BUS for an ELAN.

Operators

show, clear

Parameters

Input Parameter	Description	Value/Field Size	Default
[ELANNumber]	Number of the ELAN to which the BUS belongs.	0-125 or All	All

Output Parameter	Description
[Out Octets]	Number of octets (bytes) the BUS has sent since its initialization.
[Out Unicast]	Number of unicast frames forwarded by the BUS.
[Out Multicast]	Number of multicast frames forwarded by the BUS.
[In Octets]	Number of octets (bytes) the BUS has received since its initialization.
[In Unicast]	Number of unicast frames received by the BUS.
[In Multicast]	Number of multicast frames received by the BUS.
[Frame Timeouts]	Number of frames dropped by the BUS due to timeout.
[VCC Rejects]	Number of frames rejected because VCC is not available.

Descriptions

Operator	Parameters/Permissions	Description
show busstat	[ELANNumber] <elannumber> All	Displays BUS statistics for the specified ELAN or for all ELANs.
clear busstat	[ELANNumber] <elannumber> Administrator	Clears BUS statistics for the specified ELAN or for all ELANs.

Examples

```
switch_prompt # show busstat 3
```

```
ELAN ELAN003 Statistics
Out Octets           : 450432
Out Unicast          : 7030
Out Multicast         : 3
In Octets            : 450432
In Unicast           : 7030
In Multicast          : 3
Frame Timeouts       : 0
VCC Rejects          : 0
```

```
switch_prompt #
```

```
switch_prompt # clear busstat
```

```
ELANNumber(ALL):
```

```
Clearing ALL BUS ELAN Statistics
```

```
Confirm(y/n)?y
```

```
switch_prompt #
```

BUStype

Use BUStype to enable/disable intelligent BUS mode.



Note If intelligent BUS mode is enabled, a unicast packet sent to the BUS is forwarded only to the LANE client whose destination address is specified in the packet. If intelligent BUS mode is not enabled, a unicast packet sent to the BUS is forwarded to all LANE clients connected to the BUS.

Operators

modify

Parameters

This attribute has no output parameters.

Input Parameter	Description	Value/Field Size	Default
[IntelligentBUSMode]	Enables/disables intelligent BUS mode.	Off, On	Off

Descriptions

Operator	Parameters/Permissions	Description
modify bustype	[IntelligentBUSMode] <intelligentbusmode> Administrator	Sets intelligent BUS mode.

Examples

```
switch_prompt # modify bustype  
IntelligentBUSMode(OFF) : on  
  
BUS Type Set to Intelligent Mode  
  
switch_prompt #
```

CACEqBwAllocScheme

Use CACEqBwAllocScheme to set or display the equivalent bandwidth allocation scheme of switch ports.

Operators

modify, show

Parameters

Input Parameter	Description	Value/Field Size	Default
[PortNumber]	Port number on the switch. You can specify a physical or virtual port.	A1 to B4 (physical-2500 family), A1. <i>n</i> to B4. <i>n</i> (virtual-2500 family), 1A1 to 8B4 (physical-6500), 1A1. <i>n</i> to 8B4. <i>n</i> (virtual-6500), or All	All
[ServiceCategory]	Service category.	CBR, UBR, RTVBR, NRTVBR or ABR	CBR
[AllocScheme]	Allocation scheme for connection admission.	CON (conservative), LIB (liberal), MOD (moderate)	CON

Output Parameter	Description
[Port#]	Port number on the switch. (Same as the [PortNumber] input parameter.)
[Alloc Scheme]	Allocation scheme for connection admission for each service category.

Descriptions

Operator	Parameters/Permissions	Description
modify caceqbwallocscheme	[PortNumber] <portnumber> [ServiceCategory] <servicecategory> [AllocScheme] <allocscheme> Administrator	Sets allocation scheme.
show caceqbwallocscheme	Administrator	Displays allocation scheme.

Examples

```
switch_prompt # show caceqbwallocscheme
PortNumber(ALL) :
```

```
=====
```

Port#	Alloc Scheme for				
	CBR	RTVBR	NRTVBR	UBR	ABR
7A1	CON	CON	CON	LIB	CON
7A1.1	CON	CON	CON	LIB	CON
7A2	CON	CON	CON	LIB	CON
7A3	CON	CON	CON	LIB	CON
7A4	CON	CON	CON	LIB	CON
7B1	CON	CON	CON	LIB	CON
7B2	CON	CON	CON	LIB	CON
7B3	CON	CON	CON	LIB	CON
CPU	CON	CON	CON	LIB	CON
CPU.1	CON	CON	CON	LIB	CON

```
=====
```

```
switch_prompt #

switch_prompt # modify caceqbwallocscheme
PortNumber( ) : 7a1
ServeCategory(CBR) : nrtvbr
AllocScheme(CONSERVATIVE) : liberal

switch_prompt #

switch_prompt # show caceqbwallocscheme
PortNumber(ALL) :
```

```
=====
```

Port#	Alloc Scheme for				
	CBR	RTVBR	NRTVBR	UBR	ABR
7A1	CON	CON	LIB	LIB	CON
7A1.1	CON	CON	CON	LIB	CON
7A2	CON	CON	CON	LIB	CON
7A3	CON	CON	CON	LIB	CON
7A4	CON	CON	CON	LIB	CON
7B1	CON	CON	CON	LIB	CON
7B2	CON	CON	CON	LIB	CON
7B3	CON	CON	CON	LIB	CON
CPU	CON	CON	CON	LIB	CON
CPU.1	CON	CON	CON	LIB	CON

```
=====
```

```
switch_prompt #
```

CacInfo

Use CacInfo to display bandwidth allocated to switch ports per service category.

Operators

show

Parameters

Input Parameter	Description	Value/Field Size	Default
[PortNumber]	Port number on the switch. You can specify a physical or virtual port.	A1 to B4 (physical-2500 family), A1.n to B4.n (virtual-2500 family), 1A1 to 8B4 (physical-6500), 1A1.n to 8B4.n (virtual-6500), or All	All
[BandwidthUnit]	Unit for specifying bandwidth.	CPS (cells per second), KBS (Kbits per second), MBS (Mbits per second), or PER (percentage)	CPS

Output Parameter	Description
[Port#]	Port number on the switch. (Same as the [PortNumber] input parameter.)
[Total BW]	Available physical link bandwidth (in bandwidth units specified as input parameter).
[Total BW Allocated]	Bandwidth allocated on this port.
[BwAlloc for ServiceCategory]	Bandwidth allocated for each service category. Supported service categories are: CBR (constant bit rate), UBR (unspecified bit rate), RTVBR (realtime variable bit rate), NRTVBR (non-realtime variable bit rate), ABR (available bit rate).

Descriptions

Operator	Parameters/Permissions	Description
show cacinfo	[PortNumber] <portnumber> [BandWidthUnit] <bandwidthunit> Administrator	Displays port bandwidth per service category.

Examples

```
switch_prompt # show cacinfo
```

```
PortNumber(ALL)           : ALL
BandWidthUnit(CPS)        : CPS
=====
```

Port#	Total BW	Total BW Allocated	BwAlloc CBR	For RT-VBR	ServiceCategory NRT-VBR	UBR	ABR
1A1	264186	10	0	0	0	10	0
1A2	264186	0	0	0	0	0	0
1A3	264186	10	0	0	0	10	0
1A4	264186	0	0	0	0	0	0
4B1	264186	0	0	0	0	0	0
4B2	264186	0	0	0	0	0	0
4B3	264186	0	0	0	0	0	0

```
switch_prompt #
```


CACPortBw

Use CACPortBw to display minimum and maximum bandwidth of switch ports.

Operators

show

Parameters

Input Parameter	Description	Value/Field Size	Default
[PortNumber]	Port number on the switch. You can specify a physical or virtual port.	A1 to B4 (physical-2500 family), A1. <i>n</i> to B4. <i>n</i> (virtual-2500 family), 1A1 to 8B4 (physical-6500), 1A1. <i>n</i> to 8B4. <i>n</i> (virtual-6500), or All	All

Output Parameter	Description
[Port#]	Port number on the switch. (Same as the [PortNumber] input parameter.)
[MaxBandwidthInMbps]	Maximum bandwidth allocated to this port in MegaBits per second.
[MaxBandwidthInKbps]	Maximum bandwidth allocated to this port in KiloBits per second.
[MaxBandwidthInCps]	Maximum bandwidth allocated to this port in cells per second.
[MaxBandwidthInPer]	Maximum bandwidth allocated to this port in percentage.
[MinBandwidthInMbps]	Minimum bandwidth allocated to this port in MegaBits per second.
[MinBandwidthInKbps]	Minimum bandwidth allocated to this port in KiloBits per second.
[MinBandwidthInCps]	Minimum bandwidth allocated to this port in cells per second.
[MinBandwidthInPer]	Maximum bandwidth allocated to this port in percentage.

Descriptions

Operator	Parameters/Permissions	Description
show CACPortBw	Administrator	Displays minimum and maximum port bandwidth.

Examples

```
switch_prompt # show cacportbw
```

```
PortNumber(ALL) :
```

```
=====
```

Port#	Max Bandwidth					Min Bandwidth			
	In					In			
	Mbps	Kbps	Cps	%		Mbps	Kbps	Cps	%
7A1	154	158208	422668	99		0	0	0	0
7A2	154	158208	422668	99		0	0	0	0
7A3	154	158208	422668	99		0	0	0	0
7A4	154	158208	422668	99		0	0	0	0
7B1	154	158208	422668	99		0	0	0	0
7B2	154	158208	422668	99		0	0	0	0
7B3	154	158208	422668	99		0	0	0	0
CPU	154	158208	422668	99		0	0	0	0
CPU.1	10	10752	28992	6		0	0	0	0

```
=====
```

```
switch_prompt #
```

CACServiceClassBw

Use CACServiceClassBw to set or display the bandwidth allocated to each service category.



Note The following applies to SmartSwitch 6500 only: You can hot-swap TSMs. Hot-swapping is replacing a module when the chassis is powered up. If you replace a TSM with another TSM of the same type (same I/O ports), existing configuration of port parameters is not affected. This includes parameters set using any of the following attributes: ATMRoute, CACServiceClassBw, IlmiConfig, NetPrefix, Port, PortConfig, PVC, PVP, ServiceRegistry, SigTimer, SigStatistics, SSCOPConfig, and SSCOPStatistics. If you replace a TSM with another TSM of a different type, existing configuration of port parameters is deleted. The deletion occurs when the new module is plugged into the chassis backplane.

Operators

modify, show

Parameters

Input Parameter	Description	Value/Field Size	Default
[PortNumber]	Port number on the switch. You can specify a physical or virtual port.	A1 to B4 (physical-2500 family), A1. <i>n</i> to B4. <i>n</i> (virtual-2500 family), 1A1 to 8B4 (physical-6500), 1A1. <i>n</i> to 8B4. <i>n</i> (virtual-6500), or All	
[ServiceCategory]	Service category.	CBR, UBR, RTVBR, NRTVBR, ABR	UBR
[MaxBandwidthInPerCBR]	Maximum bandwidth allocated for CBR. (Total of all the service category bandwidth should not exceed 100%.)	Zero or positive integer	
[MaxBandwidthInPercentage RTVBR]	Maximum bandwidth allocated for RTVBR.	Zero or positive integer	
[MaxBandwidthInPercentage NRTVBR]	Maximum bandwidth allocated for NRTVBR.	Zero or positive integer	

Input Parameter	Description	Value/Field Size	Default
[MaxBandwidthInPercentage UBR]	Maximum bandwidth allocated for UBR.	Zero or positive integer	
[MaxBandwidthInPercentage ABR]	Maximum bandwidth allocated for ABR.	Zero or positive integer	

Output Parameter	Description
[Port#]	Port number on the switch. (Same as [PortNumber] input parameter.)
[SC]	Service category. (Same as [ServiceCategory] input parameter.)
[Max Bandwidth In Mbps)	Maximum bandwidth in MegaBits per second allocated to the service category specified.
[Max Bandwidth In Kbps)	Maximum bandwidth in KiloBits per second allocated to the service category specified.
[Max Bandwidth In Cps]	Maximum bandwidth in cells per second allocated to the service category specified.
[Max Bandwidth In %]	Maximum bandwidth in percent allocated to the service category specified.

Descriptions

Operator	Parameters/Permissions	Description
modify cacserviceclassbw	[PortNumber] <portnumber> [ServiceCategory] <servicecategory> [BandwidthUnit] <bandwidthunit> [MaxBandwidthInPercentageCBR] <maxbandinpercbr> [MaxBandwidthInPercentageRTVBR] <maxbandinperrtvbr> [MaxBandwidthInPercentageNRTVBR] <maxbandinpernrtvbr> [MaxBandInPercentageUBR] <maxbandinperubr> [MaxBandInPercentageABR] <maxbandinperabr> [MaxBandwidth] <maxbandwidth> Administrator	Sets bandwidth per service category.
show cacserviceclassbw	Administrator	Displays bandwidth per service class.

Examples

```
switch_prompt # modify cacServiceClassBW
```

```
PortNumber() : 1a1
MaximumBandWidthIn-Percentage-CBR(25) :
MaximumBandWidthIn-Percentage-RTVBR(25) :
MaximumBandWidthIn-Percentage-NRTVBR(25) :
MaximumBandWidthIn-Percentage-UBR(25) :
MaximumBandWidthIn-Percentage-ABR(0) :
```

```
switch_prompt #
```

```
switch_prompt #show cacServiceClassBW
```

```
PortNumber(ALL) : 1a1
SeriveCategory(UBR) : CBR
```

```
=====
Port#      SC      Max Bandwidth
              In
              Mbps  Kbps  Cps  %
=====
1A1        CBR      1      1      1      1
=====
```

```
switch_prompt #
```

CACStatistics

Use CACStatistics to show CAC statistics for switch ports.

Operators

clear, show

Parameters

Input Parameter	Description	Value/Field Size	Default
[PortNumber]	Port number on the switch. You can specify a physical or virtual port.	A1 to B4 (physical-2500 family), A1.n to B4.n (virtual-2500 family), 1A1 to 8B4 (physical-6500), 1A1.n to 8B4.n (virtual-6500), or All	All
Output Parameter	Description		
[Port Number]	Physical or virtual port number on the switch.		
[Global Statistics]	Global CAC statistics (applies to all ports).		
[Per Port Statistics]	Statistics for a specific port.		

Descriptions

Operator	Parameters/Permissions	Description
clear cacstatistics	[PortNumber] <portnumber> Administrator	Clears CAC statistics of a port or all ports.
show cacstatistics	[PortNumber] <portnumber> Administrator	Displays CAC statistics of a port or all ports.

Examples

```

switch_prompt # show cacstatistics
PortNumber()                : 1a1

=====
                        CAC Statistics
=====
Global Statistics :
No of Rejections due to no memory                :0
No of Rejections due to Invalid Physical port    :0
No of Rejections due to Invalid logical port     :0
No of Rejections due to Invalid VPI              :0
No of Rejections due to Pre CAC no memory        :0

Per Port Statistics :
Port Number                                     :1A1
No of calls rejected due to User cell rate unavailable :0
No of calls rejected due to Sytem Low Memory       :0
No of calls rejected due to Link Down              :0
No of calls rejected due to VPCI/VCI unavailable   :0
No of calls rejected due to Unsupported traffic params :0
No of CBR calls rejected                         :0
No of RT_VBR calls rejected                      :0
No of NRT_VBR calls rejected                    :0
No of UBR calls rejected                        :0
No of ABR calls rejected                       :0
No of CBR calls HIGH threshold exceeded          :0
No of CBR calls LOW threshold exceeded           :0
No of RT_VBR calls HIGH threshold exceeded       :0
No of RT_VBR calls LOW threshold exceeded        :0
No of NRT_VBR calls HIGH threshold exceeded      :0
No of NRT_VBR calls LOW threshold exceeded       :0
No of UBR calls HIGH threshold exceeded          :0
No of UBR calls LOW threshold exceeded           :0
No of ABR calls HIGH threshold exceeded          :0
No of ABR calls LOW threshold exceeded           :0
No of PNNI Updates sent                        :0
Total No of calls HIGH threshold exceeded        :0
Total No of calls LOW threshold exceeded         :0

switch_prompt #

```

Client

Use Client to manage LANE and IP/ATM clients on the switch. Clients on the switch are called local clients.



Note Use the LANEClient attribute to add or modify a LANE client. Use the IPATMClient attribute to add or modify an IP/ATM client.

Operators

activate, deactivate, delete, restart, show

Parameters

Input Parameter	Description	Value/Field Size	Default
[ClientNumber]	Number of the local client.	0-125 or All	All

In the Output Parameter table below, (</d>) appears next to parameters that are available only through the **show client /d** (detailed) command.

Output Parameter	Description
[Client]	Number of the local client. (Same as the [ClientNumber] input parameter.)
[Type]	Type of client.
[IP Address]	IP address of client.
[Server Type]	Specifies what server type the client is on.
[Server Conn]	Status of connection the client has with the server. Possible values are: Established and Shutdown.
[Status]	Current status of the client.
[Client State] </d>	Status of where the client is in the process of making a connection.
[Client Address] </d>	ATM address of the client.
[LAN Name] </d>	ELAN name for this client.
[LECS Addr Source] </d>	ILMI, well-known address, or LECS address.

Output Parameter	Description
[LECS Address] </d>	ATM address of the LECS.
[LES Address] </d>	ATM address of the LES.
[LAN Type] </d>	Type of ELAN.
[MTU] </d>	Maximum transfer unit assigned for this client.
[IP NetMask] </d>	IP netmask assigned to the client.

Descriptions

Operator	Parameters/Permissions	Description
activate client	[ClientNumber] <clientnumber> Administrator	Activates a client on the switch (same as the restart client command).
deactivate client	[ClientNumber] <clientnumber> Administrator	Deactivates a client on the switch.
delete client	[ClientNumber] <clientnumber> Administrator	Removes a client from the switch.
restart client	[ClientNumber] <clientnumber> Administrator	Restarts a client on the switch. If a client fails to successfully join a VLAN, you can restart the client to retry. The switch software, on a periodic basis, automatically tries to restart clients that have not successfully joined. Enter show client to confirm that the client(s) have restarted.
show client (/d)	[ClientNumber] <clientnumber> All	Displays the details of a client on the switch. You can obtain more details of all the clients on the switch by adding /d to the end of the command. For example, show client /d .

Examples

```
switch_prompt # delete client 4
IP/ATM Client4 Address: 39:00:00:00:00:00:00:00:00:14:15:00:00:00:7A:01:01:5B:00
Confirm(y/n)?y
switch_prompt #
```

```
switch_prompt # show client
ClientNumber(ALL) :
```

Client	Type	IP Address	Server Type	Server Conn	Status
1	LANE	90.1.1.186	LECS	Established	Operational
3	IP/ATM	90.1.1.124	Local	Established	Operational

```
switch_prompt #
```

```
switch_prompt # restart client
ClientNumber(ALL) :
switch_prompt #
```

```
switch_prompt # show client
ClientNumber(ALL) :
```

Client	Type	IP Address	Server Type	Server Conn	Status
1	LANE	90.1.1.186	LECS	Shutdown	Initial
3	IP/ATM	90.1.1.124	Local	Shutdown	Initial

```
switch_prompt #
```

```
switch_prompt # show client /s
ClientNumber(ALL) :
```

Client	Type	IP Address	Server Type	Server Conn	Status
1	LANE	90.1.1.186	LECS	Established	Operational
3	IP/ATM	90.1.1.124	Local	Established	Operational

```
switch_prompt #
```

With the following example (**</d>**), notice how you get the same amount of detail whether you specify the client or accept the default (All):

```
switch_prompt # show client /d
ClientNumber(ALL) :
```

```
LANE Client 1
=====
Client State      : Operational
Client Address    : 39:00:00:00:00:00:00:00:00:14:15:00:00:20:D4:14:15:00:00
LAN Name          : elan1
LECS Addr Source: ILM1
LECS Address      : 39:00:00:00:00:00:00:00:00:14:15:00:00:20:D4:14:15:00:01
LES Address       : 39:00:00:00:00:00:00:00:00:14:15:00:00:20:D4:14:15:00:02
LAN Type          : 802.3
MTU               : 1516
IP Address        : 90.1.1.186
IP NetMask        : 255.255.255.0
```

```
IP/ATM Client 3
=====
Client State      : Operational
Client Address    : 39:00:00:00:00:00:00:00:00:14:15:00:00:00:5A:01:01:7C:00
Server            : is local
Server Connection: Established
MTU               : 9180
IP Address        : 90.1.1.124
IP NetMask        : 255.0.0.0
switch_prompt #
```

```
switch_prompt # show client 3 /d
```

```
IP/ATM Client 3
=====
Client State      : Operational
Client Address    : 39:00:00:00:00:00:00:00:00:14:15:00:00:00:5A:01:01:7C:00
Server            : is local
Server Connection: Established
MTU               : 9180
IP Address        : 90.1.1.124
IP NetMask        : 255.0.0.0
switch_prompt #
```

ClientARP

Use ClientARP to display the ARP table maintained by each LANE or IP/ATM client on the switch. For a LANE client, the table contains mappings of MAC to ATM addresses for destination clients. The mappings are supplied by the ARP server of each ELAN to which the LANE client connects. For an IP/ATM client, the table contains mappings of IP to ATM addresses for destination clients. The mappings are supplied by the ARP server of each IP/ATM VLAN to which the IP/ATM client connects. The LANE and IP/ATM clients cache the mappings to avoid repeated address resolution requests to ARP servers.



Note Clients on the switch are called local clients.

Operators

show

Parameters

Input Parameter	Description	Value/Field Size	Default
[ClientNumber]	Number of the local client.	0-125 or All	All

Output Parameter	Description
[MAC Address]	MAC address of the LANE destination client.
[IP Address]	IP address of the IP/ATM destination client.
[ATM Address]	ATM address of the LANE or IP/ATM destination client.

Descriptions

Operator	Parameters/Permissions	Description
show clientarp	[ClientNumber] <clientnumber> All	Displays details about LANE or IP/ATM client ARP entries.

Examples

```
switch_prompt # show clientarp  
ClientNumber(ALL) :
```

```
LANE Client 0 ARP Table
```

MAC Address	ATM Address
=====	
00:20:D4:14:15:00	39:00:00:00:00:00:00:00:20:D4:14:15:00:00:20:D4:14:15:00:02

```
IP/ATM Client 3 ARP Table
```

IP Address	ATM Address
=====	
10.1.1.1	39:00:00:00:00:00:00:00:20:D4:14:15:00:00:20:D4:14:2F:00:00:0A:01:01:02:00

```
switch_prompt #
```

ClientStat

Use ClientStat to display packet count statistics of LANE or IP/ATM clients on the switch.



Note Clients on the switch are called local clients.

Operators

show

Parameters

Input Parameter	Description	Value/Field Size	Default
[ClientNumber]	Number of the local client.	0-125 or All	All

In the Output Parameter table below, (</d>) appears next to parameters that are available only through the **show clientstat /d** (detailed) command. The (IP/ATM) and (LANE) client indicators after particular parameters indicate that these parameters display only if that particular client type is active.

Output Parameter	Description
[Client]	Number of the client. (Same as the [ClientNumber] input parameter.)
[Type]	Type of client.
[RxPkts]	Number of packets received.
[TxPkts]	Number of packets transmitted.
[RxOctets]	Number of octets (bytes) received.
[TxOctets]	Number of octets (bytes) transmitted.
[Bytes Received] </d>	Number of bytes received.
[Unicast Packets] </d>	Number of unicast packets received or transmitted.
[Multicast Packets] </d>	Interface maximum transfer unit to assign to the local interface associated with this client.
[Broadcast Packets] </d>	Number of broadcast packets received or transmitted.

Output Parameter	Description
[Error Packets] </d>	Number of error packets received or transmitted.
[Dropped Packets] </d>	Number of received or transmitted packets dropped.
[Bytes Transmitted] </d>	Number of bytes transmitted.
[ARP Requests Sent] </d>	ARP requests from a server sent to the client.
[ARP Replies Rcvd] </d>	ARP replies from a client received by the server.
[ARP Requests Rcvd] </d>	ARP requests from a client received by the server.
[ARP Replies Sent] </d>	ARP replies from a server sent to the client.
[Ctrl Frames Sent] (LANE) </d>	Number of control frames sent.
[Ctrl Frames Rcvd] (LANE) </d>	Number of control frames received.
[SVC Failures] (LANE) </d>	Number of clients who failed to join the SVC (switched virtual circuit).
[ARP Unreachables] (IP/ATM) </d>	ARP unreachable clients.
[ARP NAKs] (IP/ATM) </d>	Number of inverse ARP NAKs (negative acknowledges) received.
[Echo Discards] </d>	Number of echo discards.
[Filtered Multicasts] </d>	Number of filtered multicasts.
[Flow Failures] </d>	Number of flow failures.

Descriptions

Operator	Parameters/Permissions	Description
show	[ClientNumber] <clientnumber>	Displays packet count statistics for local clients.
clientstat	All	

Examples

The examples show statistics for all clients, detail (</d>) for all clients, an IP/ATM client, and a LANE client.

```
switch_prompt # show clientstat
ClientNumber(ALL) :
```

```

Client Type      RxPkts    TxPkts    RxOctets    TxOctets
=====
  1  LANE         0         0         0         0
  3  IP/ATM       0         0         0         0
switch_prompt #

switch_prompt # show clientstat /d
ClientNumber(ALL):

Stats for LANE client 1
=====
Rx Stats
Bytes Received           : 0
Unicast Packets          : 0
Multicast Packets        : 0
Broadcast Packets        : 0
Error Packets            : 0
Dropped Packets          : 0
Tx Stats
Bytes Transmitted        : 0
Unicast Packets          : 0
Multicast Packets        : 0
Broadcast Packets        : 0
Error Packets            : 0
Dropped Packets          : 0
LAN Emulation Statistics
ARP Requests Sent        : 3
ARP Replies Rcvd         : 3
ARP Requests Rcvd        : 0
ARP Replies Sent         : 0
Ctrl Frames Sent         : 9
Ctrl Frames Rcvd         : 9
SVC Failures             : 0

Stats for IP/ATM client 3
=====
Rx Stats
Bytes Received           : 0
Unicast Packets          : 0
Multicast Packets        : 0
Broadcast Packets        : 0
Error Packets            : 0
Tx Stats
Bytes Transmitted        : 0
Unicast Packets          : 0
Multicast Packets        : 0
Broadcast Packets        : 0
Error Packets            : 0
Dropped Packets          : 0
IP/ATM Statistics
ARP Requests Sent        : 0
ARP Replies Rcvd         : 0
ARP Requests Rcvd        : 0
ARP Replies Sent         : 0
ARP Unreachables         : 0
ARP NAKs                 : 0
switch_prompt # show clientstat 3

```


Stats for IP/ATM client 3

```
=====
Rx Stats
Bytes Received           : 0
Unicast Packets          : 0
Multicast Packets        : 0
Broadcast Packets        : 0
Error Packets            : 0
Dropped Packets          : 0
Tx Stats
Bytes Transmitted        : 0
Unicast Packets          : 0
Multicast Packets        : 0
Broadcast Packets        : 0
Error Packets            : 0
Dropped Packets          : 0
IP/ATM Statistics
ARP Requests Sent        : 0
ARP Replies Rcvd         : 0
ARP Requests Rcvd        : 0
ARP Replies Sent         : 0
ARP Unreachables         : 0
ARP NAKs                 : 0
switch_prompt #
```

switch_prompt # **show clientstat 1**

Stats for LANE client 1

```
=====
Rx Stats
Bytes Received           : 0
Unicast Packets          : 0
Multicast Packets        : 0
Broadcast Packets        : 0
Error Packets            : 0
Dropped Packets          : 0
Tx Stats
Bytes Transmitted        : 0
Unicast Packets          : 0
Multicast Packets        : 0
Broadcast Packets        : 0
Error Packets            : 0
Dropped Packets          : 0
LAN Emulation Statistics
ARP Requests Sent        : 3
ARP Replies Rcvd         : 3
ARP Requests Rcvd        : 0
ARP Replies Sent         : 0
Ctrl Frames Sent         : 9
Ctrl Frames Rcvd         : 9
SVC Failures             : 0
switch_prompt #
```

ClientVC

Use ClientVC to display VCs associated with ARP mappings cached by LANE or IP/ATM clients on the switch. ClientARP is similar to ClientVC but does not show the VPI/VCI corresponding to a route to a destination client.



Note Clients on the switch are called local clients.

Operator

show

Parameters

Input Parameter	Description	Value/Field Size	Default
[ClientNumber]	Number of the local client.	0-125 or All	All

Output Parameter	Description
[MAC Address]	MAC address of the LANE destination client.
[IP Address]	IP address of the IP/ATM destination client.
[VPI/VCI]	VPI/VCI values of control direct VCC or multicast Send VCC to the destination client.
[ATM Address]	ATM address of the LANE or IP/ATM destination client.

Descriptions

Operator	Parameters/Permissions	Description
show	[ClientNumber] <clientnumber>	Displays VC details for local IP/ATM or LANE clients in addition to client ARP mapping details. For IP/ATM, the destination IP address appears; for LANE, the destination MAC address appears. The destination address is what is located at the other end of the VC.
clientvc	All	

Examples

```
switch_prompt # show clientvc  
ClientNumber(ALL) :  
LANE Client 0 VC Table
```

MAC Address	VPI/VCI	ATM Address
=====		
00:02:D4:14:22:80	0/2453	39:00:00:00:00:00:00:00:20:D4:14:15:00:00:20:D4:14:22:80:00

```
IP/ATM Client 50 VC Table
```

IP Address	VPI/VCI	ATM Address
=====		
10.1.1.2	0/130	39:00:00:00:00:00:00:00:20:D4:14:22:80:00:00:0A:01:01:02:00

Community

Use Community to group NMS (network management system) hosts by privilege level. Hosts are collectively called communities. Host privilege levels determine the type of information access permitted by the switch. The switch provides access to the information only if the request comes from a community configured with the necessary privileges.

Operators

add, delete, show

Parameters

Input Parameter	Description	Value/Field Size	Default
[Name]	SNMP community name. Needs to be defined on the switch to access SNMP.	64 characters	No default
[IPAddr]	IP address of the host or hosts that can use this community name. Entering 0.0.0.0 allows access by any host.	Dot decimal/ 7-15 characters	No default
[Privilege]	Privileges associated with this community.	Read, Write, Read-write	Read

Output Parameter	Description
[Community Name]	SNMP community name. (Same as the [Name] input parameter.)

Descriptions

Operator	Parameters/Permissions	Description
add community	[Name] <communityname> [IPAddr] <ipaddress> [Privilege] <privilege> Administrator	Creates a community on the switch.
delete community	[Name] <communityname> [IPAddr] <ipaddress> Administrator	Removes a community from the switch.
show community	Administrator	Displays all communities configured on the switch.

Examples

```
switch_prompt # add community
Name()                : boris
IpAddr()               : 90.1.1.1
Privilege(read)        :
switch_prompt #
```

```
switch_prompt # show community
```

Community Name	IP Address	Privilege
ILMI	0.0.0.0	READ
boris	90.1.1.1	READ
public	0.0.0.0	READ
zeitnet	0.0.0.0	WRITE

```
switch_prompt #
```

```
switch_prompt # delete community
Name()                : boris
IpAddr()               : 90.1.1.1
switch_prompt #
```

```
switch_prompt # show community
```

Community Name	IP Address	Privilege
ILMI	0.0.0.0	READ
public	0.0.0.0	READ
zeitnet	0.0.0.0	WRITE

```
switch_prompt #
```

Config

Use Config to erase the configuration information on the SmartSwitch 6500. Before using the `clear config` command, you should back up the switch configuration using the `backup switch` command.

Operators

clear, flush

Parameters

This attribute has no input or output parameters. Just enter `clear config` at the switch prompt.

Descriptions

Operator	Parameters/Permissions	Description
<code>clear config</code>	Administrator	Erases all switch configuration information, including Ethernet interface address, IP/ATM VLAN and ELAN configurations, signaling configuration, port configurations, and so on.

Examples

```
switch_prompt # clear config
You should backup your configuration using the "backup switch" command, in case
you want to recover this configuration
Continuing will permanently erase the current switch configuration,
and requires a switch reboot.
Are you sure this is what you want to do?
Confirm(y/n)?y
Configuration cleared.
Rebooting is required to ensure correct operation,
Do you want to reboot now?
Confirm(y/n)?y
```

ConsoleTimeout

Use ConsoleTimeout to set or display the timeout for the console interface.

Operators

modify, show

Parameters

Input Parameter	Description	Value/Field Size	Default
[ConsoleTimeout]	Console timeout (in minutes).	1-60 min. Setting console timeout to 0 toggles console timeout off.	0 (Off)

Output Parameter	Description
[ConsoleTimeout]	Console timeout (in minutes).

Descriptions

Operator	Parameters/Permissions	Description
modify consoletimeout	[ConsoleTimeout] <consoletimeout> Administrator	Sets console timeout.
show consoletimeout	Administrator	Displays current console timeout.

Examples

```
switch_prompt # set consoletimeout
ConsoleTimeout(0)      : 0
You are about to disable Console Timeout
```

```
Confirm (y/N)? : y
switch_prompt #
```

```
switch_prompt # show consoletimeout
Console Timeout in minutes
=====
ConsoleTimeout      : OFF

switch_prompt #
```

CoreDump

Use CoreDump to dump the system CPU and/or common DRAM in the event of a system failure. The core is dumped to a file specified on a local Ethernet host. To use CoreDump, the Ethernet host must run TFTP server software, and you must have write access to the TFTP directory.

Operators

modify, show

Parameters

Input Parameters	Description	Value/Field Size	Default
[EnableCoreDump]	Enables core dump.	Y (Yes), N (No)	N
[ServerIP]	IP address of host to which the core is dumped.		No default
[CoreDumpFile]	Full pathname of the file to which the core is dumped.		No default
[userName]	Login name on the host to which the core is dumped. The user should have write access to the directory on the host specified.		No default
[UserPassword]	Password on the host.		No default

Output Parameter	Description
[CoreDumpEnabled]	Indicates whether or not core dump is enabled. (Same as the [EnableCoreDump] input parameter.)
[CoreDumpServerIP]	IP address of host to which the core is dumped. (Same as the [ServerIP] input parameter.)
[CoreDumpFile]	Full pathname of the file to which the core is dumped.

Descriptions

Operator	Parameters/Permissions	Description
modify coredump	[EnableCoreDump] <enablecoredump> [ServerIP] <serverip> [CoreDumpFile] <coredumpfile> [userName] <username> [UserPassword] <password> Administrator	<p>Enables core dump. Once enabled, the core is dumped to the file specified in the event of a system failure. The core dump takes about five minutes. After the core dump, the switch is rebooted.</p> <p>The core is dumped to two files, one containing CPU memory (core_cpu), the other common memory (core_cmnn). You can send these files to Cabletron customer support for analysis.</p> <p>The modify coredump command uses FTP to create the core_cpu and core_cmnn files. If the host does not run FTP, create these files manually before executing the modify coredump command. Ensure the files have write access for everyone.</p> <p>Note that each subsequent core dump overwrites data from the previous core dump. If you want to retain the previous core dump, rename the core dump files or move them.</p>
show coredump	Administrator	Displays core dump status.

Examples

```
switch_prompt # modify coredump
```

```
EnableCoreDump(N)      :Y
ServerIP()              :204.95.77.240
CoreDumpFile()          :/tftpboot/ssubrama/core
userName()              :ssubrama
UserPassword()          :password
```

```
switch_prompt # show coredump
```

```
CoreDumpEnabled        : Yes
CoreDumpServerIP       : 204.95.77.240
CoreDumpFile           : /tftpboot/ssubrama/core
```

CpuSwitchover

(SmartSwitch 6500 Only)

Use CpuSwitchover to manually switch roles of the redundant (slave) and master TSM/CPU modules (the slave module becomes the master module and vice versa). The **execute cpuswitchover** command is available only if a slave TSM/CPU module is present.



Note CPU switchover occurs automatically if support for automatic TSM/CPU redundancy has been activated and is operational. You activate automatic TSM/CPU redundancy with the RedundancyOn attribute.

Operators

execute

Parameters

This attribute has no output parameters.

Input Parameter	Description	Value/Field Size	Default
[BackupConfig]	Sets/unsets a flag to backup configuration.	Y (Yes), N (No)	Y

Descriptions

Operator	Parameters/Permissions	Description
execute cpuswitchover	[BackupConfig] <backupconfig> Administrator	Switches the slave TSM/CPU module to the master TSM/CPU module and vice versa. The current master configuration is backed up before the switchover is made. After the switchover, the master configuration is restored to the new master (the module that was the slave before the switchover).

Examples

```
switch_prompt # execute cpuswitchover  
BackupConfig(N) :
```

Backup the config and restore it on the redundant CPU when it boots up.

CsmSwitchover

(SmartSwitch 6500 Only)

Use CsmSwitchover to manually switch roles of the redundant (slave) and master CSM modules (the slave module becomes the master module and vice versa). The **execute csmswitchover** command is available only if a slave CSM module is present.



Note The switch supports automatic CPU switchover but does not support automatic CSM switchover.

Operators

execute

Parameters

This attribute has no input or output parameters.

Descriptions

Operator	Parameters/Permissions	Description
execute csmswitchover	Administrator	Switches the slave CSM module to the master CSM module and vice versa.

Examples

(Not available this draft.)

DS3E3LoopBack

Use DS3E3LoopBack to set or display loopback at DS3 or E3 ports.



Note A port in loopback mode does not pass normal traffic.

Operators

modify, show

Parameters

Input Parameter	Description	Value/Field Size	Default
[PortNumber]	Port number on the switch.	A1 to B4 (2500 family), 1A1 to 8B4 (6500), or All	All
[Loopback]	Loopback mode (see Table 2-3).	None, Cell, Payload, Line, Diag	None

Output Parameter	Description
[Port]	Port number on the switch.
[Type]	Type of port.
[Loopback]	Loopback mode specified (see Table 2-3).

Descriptions

Operator	Parameters/Permissions	Description
modify ds3e3loopback	[Port] <port> [Loopback] <loopback> Administrator	Sets loopback status of DS3 and E3 ports.
show ds3e3loopback	Administrator	Displays loopback status of DS3 and E3 ports.

Table 2-3 DS3 and E3 Loopback Modes

Mode	Description
None	Loopback is not enabled. The port passes normal traffic.
Cell	The DS3 or E3 stream is received from the network, unframed into ATM cells, reframed, and then retransmitted to the network.
Payload	The DS3 or E3 stream is received from the network, has the DS3 or E3 overhead bits reinserted, and is retransmitted to the network.
Line	Connects the transmitter to the receiver. The DS3 or E3 stream received from the line is retransmitted back out to the line. Cells generated by the switch to this port are not sent over the line.
Diag	Connects the receiver to the transmitter. The DS3 or E3 stream transmitted by the switch to a port is looped back to the switch. The DS3 or E3 stream is still transmitted to the network, but the incoming DS3 or E3 stream is ignored.

Examples

```

switch_prompt # show ds3e3loopback
Port (ALL)
  Port      Type      Loopback
=====
1D1         DS3       None
1D2         DS3       None
1D3         DS3       None
1D4         DS3       None

switch_prompt #

switch_1 # set ds3e3loopback
Port() : 1d3
Loopback(None) : Cell
NOTICE - 'tConsole' Port 1D3 (15) DOWN

switch_1 # show ds3e3loopback
Port (ALL)
  Port      Type      Loopback
=====
1D1         DS3       None
1D2         DS3       None
1D3         DS3       Cell
1D4         DS3       None

```

ELAN

Use ELAN to create or delete ELANs on the switch. It is a means to manage ELAN servers with one command. To manage ELAN servers individually, see the BUSELAN, LECSELAN, and LESELAN attributes.



Note The BUSELAN, LECSELAN, and LESELAN attributes manage, respectively, the Broadcast and Unknown Server (BUS), LAN Emulation Configuration Server (LECS), and the LAN Emulation Server (LES). The ELAN is served by a specific BUS and LES (which sometimes are said to belong to the ELAN). The ELAN is served by the network LECS.

Operators

add, delete, show

Parameters

Input Parameter	Description	Value/Field Size	Default
[ELANNumber]	Number of the ELAN.	0-125	0
[ELANName]	Name of the ELAN.	Up to 32 characters	
[ConnectMethod]	Type of connection used.	SVC	SVC
[ELANType]	The data-link type used by the ELAN.	802.3 (Ethernet) 802.5 (TokenRing)	802.3
[Multipoint]	Indicates whether control distribute VCC is PMP (point-to-multipoint) or PTP (point-to-point).	Yes: VCC is PMP No: VCC is PTP	Yes
[MTU]	Maximum transfer unit for the clients joining this ELAN.	1516, 1580, 4544, or 9234	1516
[ErrorLogEnable]	Whether or not the BUS and LES error logs are enabled.	Yes, No	No
[MinimumTDEnable]	Whether or not minimum acceptable traffic descriptor negotiation is enabled.	Yes, No	No
[ForwardPeakCellRate]	Minimum forward peak cell rate.	Positive integer	
[BackwardPeakCellRate]	Minimum backward peak cell rate.	Positive integer	

Input Parameter	Description	Value/Field Size	Default
[Distribute]	Establishes the nature of the control distribute VCC. Possible values are: All or Proxy. All establishes control distribute VCC to all clients. Proxy establishes control distribute VCC only to proxy clients.	All, Proxy	Proxy

Output Parameter	Description
[ELAN Number]	Number of the ELAN.
[LECS Address]	ATM address of the LECS that serves the ELAN.
[LES Address]	ATM address of the LES that serves the ELAN.
[ELAN Name]	Name of the ELAN.
[ELAN Type]	Type of the ELAN.
[MTU]	Maximum transfer unit for the clients joining the ELAN.
[Connection Method]	Type of connection used. (Same as the [ConnectMethod] input parameter.)
[Distribute VPI/VCI]	VPI/VCI values of the control direct VCC or multicast send VCC.
[Distribute Method]	Whether the control distribute VCC is established for all clients or only proxy clients.
[Multipoint]	Indicates whether control distribute VCC is PMP (point-to-multipoint) or PTP (point-to-point). Possible values are: Yes or No.
[Error Logging]	Whether or not the BUS, LECS, and LES error logs are enabled.
[Min TD Negotiation]	Whether or not minimum acceptable traffic descriptor negotiation is enabled.

Descriptions

Operator	Parameters/Permissions	Description
add elan	[ELANNumber] <elannumber> [ELANName] <elaname> [ConnectMethod] <connectmethod> [ELANType] <elantype> [Multipoint] <distributevcctype> [MTU] <maximumframesize> [ErrorLogEnable] <errorlogenable> [MinimumTDEnable] <minimumtdenable> [ForwardPeakCellRate] <forwardpeakcellrate> [BackwardPeakCellRate] <backwardpeakcellrate> [Distribute] <controldistributevccoption> Administrator	Quickly configures an ELAN on the switch. It adds an ELAN entry in the databases for the BUS, LECS, and LES. It also activates the ELAN.
delete elan	[ELANNumber] <elannumber> Administrator	Quickly removes an ELAN configuration from the switch. This command first checks that all servers (LECS, LES, and BUS) exist before deleting any of them.
show elan	[ELANNumber] <elannumber> All	Displays an ELAN created by either the quick add elan or the multiple set of commands to add an ELAN.

Examples

```

switch_prompt # add elan
ELANNumber(0)                : 11
ELANName(ELAN011)            :
ConnectMethod(SVC)           :
ELANType(802.3)              :
Multipoint(YES)              :
MTU(1516)                    :
ErrorLogEnable(NO)           :
MinimumTDEnable              :
ForwardPeakCellRate()        :
BackwardPeakCellRate()       :
Distribute(PROXY)            :

switch_prompt #

switch_prompt # delete elan
ELANNumber(0): 11
Confirm(y/n)?: y

switch_prompt #

switch_prompt # show elan 0
ELAN  0

=====
ELAN Number      : 0
LECS Address     : 39:00:00:00:00:00:00:00:00:00:A3:87:0B:00:00:1D:A3:87:0B:01
LES Address      : 39:00:00:00:00:00:00:00:00:00:A3:87:0B:00:00:1D:A3:87:0B:02
ELAN Name        : ELAN000
ELAN Type        : 802.3
MTU              : 1516
Connection Method : SVC
Distribute VPI/VCI: 0/0
Distribute Method : PROXY
Multipoint       : YES
Error Logging     : NO
Min TD Negotiation : NO

switch_prompt #

```

ElanMcast

Use ElanMcast to display multicast group MAC addresses served by an ELAN.

Operators

show

Parameters

Input Parameter	Description	Value/Field Size	Default
[ELANNumber]	ELAN number associated with the multicast group.	0-125	No default

Output Parameter	Description
[Mcastid]	BUS identification for the multicast group. Range is 2-64.
[Group MAC Address]	Multicast group MAC address.
[Distribute VPI/VCI]	Selective multicast forward VC established by the server.

Descriptions

Operator	Parameters/Permissions	Description
show elanmcast	[ELANNumber] <elannumber> Administrator	Displays multicast group MAC addresses served by an ELAN.

Examples

```
switch_prompt # show elanmcast 0
```

```
MULTICAST ENTRIES for VLAN : 0
```

```
-----
```

```
McastId           : 2
Group MAC Address  : 01:80:C2:00:00:00
Distribute VPI/VCI : 0/62
```

```
switch_prompt #
```

EventDisplay

Use EventDisplay to enable/disable the display of event messages on the console screen.



Note Use Events to display the events currently logged.

Operators

modify, show

Parameters

This attribute has no output parameters.

Input Parameter	Description	Value/Field Size	Default
[EventDisplay]	Toggles the display On or Off.	On, Off	

Descriptions

Operator	Parameters/Permissions	Description
modify eventdisplay	[EventDisplay] <eventdisplay> Administrator	Toggles display of event messages on the console screen.
show eventdisplay	Administrator	Displays status of events display.

Examples

```
switch_1 # show eventdisplay
Event Display is ON

switch_1 #

switch_1 # modify eventdisplay
EventDisplay(ON) : off

switch_1 #

switch_1 # show eventdisplay
Event Display is OFF

switch_1 #
```

Events

Use Events to display or delete events currently logged.



Note Events are not persistent on reboot (are not retained in the event log).

Operators

delete, show

Parameters

This attribute has no output parameters.

Input Parameter	Description	Value/Field Size	Default
[Index]	The index(es) of the events you want to display or delete.	Positive integer or All	All

Descriptions

Operator	Parameters/Permissions	Description
delete events	[Index] <index> Administrator	Deletes an event or all events.
show events	[Index] <index> Administrator	Displays event(s) currently logged. Event information includes message index number, event ID, message text, severity, and a timestamp (time the event occurred, with respect to switch up-time in hours, minutes, seconds, and milliseconds).

Examples

```
switch_prompt # show events
Index(ALL)
0 33554656 MINOR EVENT 001:27:50:708
-----
Sendto failed for IP address 206.61.231.153
1 33554656 MINOR EVENT 001:27:51:612
-----
Sendto failed for IP address 206.61.231.153
2 33554656 MINOR EVENT 001:27:51:728
-----
Sendto failed for IP address 206.61.231.153
3 33554656 MINOR EVENT 001:27:53:683
-----
Sendto failed for IP address 206.61.231.153

switch_prompt #

switch_prompt # delete events
Index(ALL) : 2

switch_prompt # show events
Index(ALL)
0 33554656 MINOR EVENT 001:27:50:708
-----
Sendto failed for IP address 206.61.231.153
1 33554656 MINOR EVENT 001:27:51:612
-----
Sendto failed for IP address 206.61.231.153
3 33554656 MINOR EVENT 001:27:53:683
-----
Sendto failed for IP address 206.61.231.153
```

Exit

Use Exit to disconnect your console connection from the switch.

Operator

exit

Parameters

This attribute has no parameters. Just enter **exit** at the switch prompt.

Descriptions

Operator	Permission	Description
exit	[exit] < exit > All	This closes your console connection. Enter exit when you are finished with a console session. If you do not exit your session, the switch remains unavailable to anyone else.

Examples

```
switch_prompt # exit  
Exiting SmartSwitch Command Console
```

Firmware

Use Firmware to download switch software from a TFTP server.

Operators

update

Parameters

This attribute has no output parameters.

Input Parameter	Description	Value/Field Size	Default
[ServerIP]	IP address of server with the software.	Dot decimal/ 7-15 characters	Last IP address
[Path]	Full pathname of the directory that contains the software.		Last path used

Descriptions

Operator	Parameters/Permissions	Description
update firmware	[Server IP] <serverip> [Path] <path> Administrator	Updates the switch software (for example, when upgrading your switch). You must know the full pathname of the updated image files. In addition, the TFTP protocol must be installed on the server. After doing an update, you must reboot the switch for the new firmware to take effect. Reboot does not affect switch configuration.

Examples

```
switch_prompt # update firmware
ServerIP()      : 206.61.237.127
Path(public/Smart6500_1.ima) : builds/lab-02.02.22/ser
ver.ima
```

You are updating the code image in the flash.

Are you sure this is what you want to do?

Confirm(y/n)?**y**

Verifying bootfile builds/lab-02.02.22/server.ima on 206.61.237.127
...passed.

Erasing Flash.

Using TFTP to get and program bootfile builds/lab-02.02.22/server.i
ma from 206.61.237.127.
4903K (5021184 bytes) received.

Flash update succeeded.

You will have to reboot for the new image to take effect.

```
switch_prompt #
```


History

Use History to view or repeat one of the last five console commands entered.

Operators

history

Parameters

This attribute has no parameters. Just enter **history** at the switch prompt.

Descriptions

Operator	Parameters/Permissions	Description
history	[history] <history> All	Displays the last five console commands entered. It also displays an index number that allows you to quickly repeat any of those commands. To repeat a command listed by history, type !<indexnumber> . For example, to repeat passwd in the following example, type !4 .

Examples

```
switch_prompt # history
5-      modify prompt
4-      passwd
3-      show privilege
2-      enable
1-      history
switch_prompt # !4
switch_prompt # passwd
```

IlmiConfig

Use IlmiConfig to manage ILMI timers specified in ILMI 4.0 and to enable or disable ILMI functions.



Note The following applies to SmartSwitch 6500 only: You can hot-swap TSMs. Hot-swapping is replacing a module when the chassis is powered up. If you replace a TSM with another TSM of the same type (same I/O ports), existing configuration of port parameters is not affected. This includes parameters set using any of the following attributes: ATMRoute, CACServiceClassBw, IlmiConfig, NetPrefix, Port, PortConfig, PVC, PVP, ServiceRegistry, SigTimer, SigStatistics, SSCOPConfig, and SSCOPStatistics. If you replace a TSM with another TSM of a different type, existing configuration of port parameters is deleted. The deletion occurs when the new module is plugged into the chassis backplane.

Operators

modify, show

Parameters

Input Parameter	Description	Value/Field Size	Default
[PortNumber]	Port number on the switch. You can specify a physical or virtual port.	A1 to B4 (physical-2500 family), A1. <i>n</i> to B4. <i>n</i> (virtual-2500 family), 1A1 to 8B4 (physical-6500), 1A1. <i>n</i> to 8B4. <i>n</i> (virtual-6500), or All	All
[IlmiAddressRegistration]	Controls ILMI address registration.	Enable, Disable	Enable
[IlmiConnectivity]	Controls ILMI connectivity.	Enable, Disable	Enable
[Timer-S]	Timer S in seconds for establishing ILMI connectivity.	1-65535	1
[Timer-T]	Timer T in seconds for checking ILMI connectivity.	0-65535	5
[Factor-K]	Number of K consecutive polls for which no ILMI response is received before ILMI connectivity is declared lost.	0-65535	4



Note The following applies to SmartSwitch 6500 only: If you hot-swap a TSM with a TSM of a different type (different I/O ports), ILMI timer information associated with ports on the original TSM is deleted. Before you insert a replacement TSM, you can display existing timer information using the **show** operator with the **/o** option (for example: **show ilmiconfig /o**).

Output Parameter	Description
[Port]	Port number on the switch. (Same as the [PortNumber] input parameter.)
[ILMIAddress]	Shows whether or not ILMI address registration is enabled.
[ILMI]	Shows whether or not ILMI connectivity is enabled.
[Timer S]	Shows value of Timer S.
[Timer T]	Shows value of Timer T.
[Factor K]	Shows value of Factor K.

Descriptions

Operator	Parameters/Permissions	Description
modify ilmiconfig	[PortNumber] <elannumber> [IlmiAddressRegistration] <ilmiaddressregistration> [IlmiConnectivity] <ilmiconnectivity> [Timer-S] <timers> [Timer-T] <timert> [Factor-K] <factork> Administrator	Sets ILMI timers and functions.
show ilmiconfig	[PortNumber] <elannumber> Administrator	Shows status of ILMI timers and functions.

Examples

```
switch prompt # modify ilmiconfig
```

Port	ILMI Address Registration	ILMI Connectivity	Timer S (seconds)	Timer T (seconds)	Factor K
1A1	Enabled	Enabled	1	1	1
1A2	Enabled	Enabled	1	5	4
1A3	Enabled	Enabled	1	5	4
1A4	Enabled	Enabled	1	5	4
3B1	Enabled	Enabled	1	5	4
3B2	Enabled	Enabled	1	5	4
3B3	Enabled	Enabled	1	5	4
CPU	Disabled	Disabled	1	5	4
CPU.1	Disabled	Disabled	1	5	4
4C1	Enabled	Enabled	1	5	4
4C2	Enabled	Enabled	1	5	4
4C3	Enabled	Enabled	1	5	4

```
switch prompt # modify ilmiconfig
```

```
PortNumber()           : 1a1
IlmiAddressRegistration(enable) :
IlmiConnectivity(enable)      :
Timer-S(1)                  : 2
Timer-T(5)                  : 7
Factor-K(4)                 : 5
```

```
switch prompt #
```

IPAddress

Use IPAddress to change IP addresses of the Ethernet port and IP netmask on the switch.

Operators

modify

Parameters

This attribute has no output parameters.

Input Parameter	Description	Value/Field Size	Default
[IPAddress]	IP address of the Ethernet port.	Dot decimal/ 7-15 characters	No Default
[IPNetMask]	IP netmask of the Ethernet port. Defaults to the appropriate netmask, based on the class of the IP address. Calculated from the first two high bits of the IP address, so it is either 255.0.0.0, 255.255.0.0, or 255.255.255.0. Must be specified only if IP subnets are being used.	Dot decimal/ 7-15 characters	255.0.0.0, 255.255.0.0 or 255.255.255.0.

Descriptions

Operator	Parameters/Permissions	Description
modify ipaddress	[IPAddress] <ipaddress> [IPNetMask] <ipnetmask> Administrator	Sets the IP address of the Ethernet port and the IP netmask. You should accept the IP netmask default unless you are experienced with configuring IP subnets.

Examples

```
switch_prompt # modify ipaddress
IPAddress(200.30.72.122) : 1.1.1.11
IPNetMask(255.255.255.0) :
Confirm(y/n)? y
Changing IP Address on System. Telnet Session (if any) will be lost.
switch_prompt #
```

IPATMARP

Use IPATMARP to display the ARP server table for an IP/ATM VLAN. The ARP server table contains mappings of IP to ATM addresses for destination clients on the VLAN.

Operators

show

Parameters

Input Parameter	Description	Value/Field Size	Default
[ClientNumber]	Number of the IP/ATM client on the switch that is the acting as the ARP server.	0-125 or All	All

Output Parameter	Description
[IP Address]	IP address of the IP/ATM destination client .
[ATM Address]	ATM address of the IP/ATM destination client.

Descriptions

Operator	Parameters/Permissions	Descriptions
show	[ClientNumber] <clientnumber>	Displays the ARP entries associated with active IP/ATM clients which are IP/ATM servers.
ipatmarp	All	

Examples

```
switch_prompt # show ipatmarp
ClientNumber(ALL):
IP/ATM Server 1 ARP Table
```

```
IP Address      ATM Address
=====
11.1.1.3        39:00:00:00:00:00:00:20:D4:14:22:80:00:00:0B:01:01:03:00
```

```
switch_prompt #
```

IPATMClient

Use IPATMClient to add or modify IP/ATM clients on the switch. Any of the clients can act as an ARP server.



Note Use the Client attribute to delete, restart, or show IP/ATM clients.

Operators

add, modify

Parameters

This attribute has no output parameters.

Input Parameter	Description	Value/Field Size	Default
[ClientNumber]	Number of the client.	0-125	0
[ServerType]	IP/ATM server type. Possible values are: Local, External, or None. Local means the client is an ARP server for a VLAN on this switch. External means the client is an ARP server for another switch.	Local, External, None	None
[ServerAddress]	ATM address of the IP/ATM server. If ServerType is None or Local, then enter the default (Local means the client also acts as an IP/ATM server for that VLAN). If ServerType is External, enter the ATM address of the external server.	13-20 byte hex-based/ Up to 59 characters	No default
[IPAddress]	IP address of the client.	Dot decimal/ 7-15 characters	No default
[NetMask]	IP netmask of the client. This parameter defaults to the appropriate netmask, based on the class of IP address. You must specify NetMask only if IP subnets are used.	Dot decimal/ 7-15 characters	255.0.0.0, 255.255.0.0 or 255.255.255.0
[MTU]	Maximum transfer unit assigned for this client.	64 to 10160	9180

Descriptions

Operator	Parameters/Permissions	Description
add ipatmclient	[ClientNumber] <clientnumber> [ServerType] <servertime> [ServerAddress] <serveraddress> [IPAddress] <ipaddress> [NetMask] <netmask> [MTU] <maxtransferunit> Administrator	Creates a new IP/ATM client on the switch. If the circuits in this VLAN are SVCs, and if you want to use this client as the ARP server, enter local for the server type. If you do not want to use this client as the ARP server, enter external as the server type, and use the address of any configured ARP server as the server address. If adding an IP/ATM client in a PVC-only environment, enter none for the server type.
modify ipatmclient	[ClientNumber] <clientnumber> [ServerType] <servertime> [ServerAddress] <serveraddress> [IPAddress] <ipaddress> [NetMask] <netmask> [MTU] <maxtransferunit> Administrator	Modifies an existing local IP/ATM client on the switch.
show client	[ClientNumber] <clientnumber> All	Displays all or specified clients on the switch. Enter show client to establish the activity of all the different client types on the switch.

Examples

```
switch_prompt # add ipatmclient
ClientNumber(0) : 50
ServerType(NONE) : local
ServerAddr() :
IpAddr() : 101.1.1.50
NetMask(255.0.0.0):
MTU(9180) :
switch_prompt #
```

```
switch_prompt # add ipatmclient
ClientNumber(0) : 1
ServerType(NONE): external
ServerAddress() : 39:00:00:00:00:00:20:D4:14:2F:00:00:00:0A:01:01:02:00
IPAddress() : 10.1.1.1
NetMask(255.0.0.0):
MTU(9180) :
switch_prompt #
```

```
switch_prompt # add ipatmclient
ClientNumber(0) : 60
ServerType(NONE) :
ServerAddr() :
IpAddr() : 101.1.1.60
NetMask(255.0.0.0):
MTU(9180) :
switch_prompt #
```

```
switch_prompt # modify ipatmclient
ClientNumber(0) : 50
ServerType(LOCAL) :
ServerAddr() :
IpAddr(101.1.1.50): 101.1.1.150
NetMask(255.0.0.0):
MTU(9180) :
```

```
switch_prompt # show client
```

```
switch_prompt #
```

IPATMPVC

Use IPATMPVC to manage IP/ATM PVCs.



Note The following applies to the SmartSwitch 2500 family only: The **delete ipatmpvc** command removes the specified IPATMPVC as well as the PVC associated with it.

Operators

add, delete, show

Parameters

Input Parameter	Description	Value/Field Size	Default
[ClientNumber]	Number of the client.	0-125 or All	All
[DestinationVPI]	VPI on CPU port of the attached PVC.	0-maximum	0
[DestinationVCI]	VCI on CPU port of the attached PVC.	0-maximum	33

Output Parameter	Description
[IP Address]	IP address of the client on the other end of the PVC.
[VPI/VCI]	VPI/VCI values of the IPATMPVC.

Descriptions

Operator	Parameters/Permissions	Description
add ipatmpvc	[ClientNumber] <clientnumber> Administrator	Creates an IP/ATM PVC. To achieve this, you must first enter add pvc then add ipatmclient for a new client (see “IPATMClient” for more details). You can then enter add ipatmpvc .

Operator	Parameters/Permissions	Description
delete ipatmpvc	[ClientNumber] <clientnumber> [DestinationVPI] <destinationVPI> [DestinationVCI] <destinationVCI> Administrator	Removes the specified IP/ATM PVC.
show ipatmpvc	[ClientNumber] <clientnumber> Administrator	Displays the details of an IP/ATM PVC.

Examples

```
switch_prompt # add pvc
```

```
ConnType(PTP)                :
Port-1-Number()              : 1a1
Port-1-VPCI                  : 0
Port-1-VCI()                 : 130
Port-2-Number()              : cpu
Port-2-VPCI()                : 0
Port-2-VCI()                 : 130
Port1-to-Port2TrafficDescriptorIndex() : 1
Port2-to-Port1TrafficDescriptorIndex() : 1
```

```
switch_prompt #
```

```
switch_prompt # show pvc
```

```
PortNumber(ALL)              :
CrossConnectId(ALL)          :
CrossConnectSubId(ALL)       :
```

```
=====
Conn Conn |           Low           |           High           | Admin
Id  SubId | Port  VPCI  VCI  Type | Port  VPCI  VCI  Type | Status
=====
2    1    | 1A1    0    130  PTP | CPU    0    130  PTP | UP
```

```
Total number of PVCs = 1
```

```
switch_prompt #
```

```
switch_prompt # add ipatmclient
```

```
ClientNumber(0)              :
ServerType(NONE)             :
ServerAddress()              :
IPAddress()                  : 10.1.1.2
NetMask(255.0.0.0)          :
MTU(9180)                    :
switch_prompt #
```

```
switch_prompt # show client 0
```

```
IP/ATM Client 0
```

```
=====
Client State      : Operational
Client Address    : 39:00:00:00:00:00:00:00:20:D4:14:22:80:00:00:0A:01:01:02:00
Server           : is none
MTU              : 9180
IP Address        : 10.1.1.2
IP NetMask        : 255.0.0.0
switch_prompt #
```

```
switch_prompt # add ipatmpvc
```

```
ClientNumber(0) :
```

```
switch_prompt #
```

```
switch_prompt # show ipatmpvc 0
```

```
IP/ATM Client 0 PVC Table
```

```
IP Address      VPI/VCI
```

```
=====
10.1.1.7        0/130
```

```
switch_prompt #
```

```
switch_prompt # delete ipatmpvc
```

```
ClientNumber(0) :
```

```
DestinationVPI(0) :
```

```
DestinationVCI(33) : 130
```

```
Confirm(y/n)? : y
```

```
switch_prompt #
```

IPATMStat

Use IPATMStat to display statistics for an IP/ATM client that acts as an ARP server.

Operator

show

Parameters

Input Parameter	Description	Value/Field Size	Default
[ClientNumber]	Number of the client.	0-125 or All	All

Output Parameter	Description
[Client]	Number of the client. (Same as the [ClientNumber] input parameter.)
[ARP Requests Recvd]	ARP requests from a client received by the server.
[ARP Replies Sent]	ARP replies from the server sent to the client.
[InARP Requests Sent]	Inverse ARP requests from the server sent to the client.
[InARP Replies Recvd]	Inverse ARP replies from a client received by the server.
[InARP Unreachables]	Inverse ARP unreachable clients.
[InNARP NAKs]	Number of inverse ARP NAKs received.

Descriptions

Operator	Parameters/Permissions	Description
show	[ClientNumber] <clientnumber>	Displays statistics associated with the IP/ATM ARP server.
ipatmstat	All	

Examples

```
switch_prompt # show ipatmstat
```

```
ClientNumber(ALL):
```

Client	ArpReqs	ArpReps	ArpUnrch	ArpNaks
50	0	0	0	0
51	0	0	0	0

```
switch_prompt #
```

```
switch_prompt # show ipatmstat 50
```

```
Stats for IP/ATM server 50
```

ARP Requests Recvd	:	0
ARP Replies Sent	:	0
InARP Requests Sent	:	0
InARP Replies Recvd	:	0
InARP Unreachables	:	0
InARP NAKs	:	0

```
switch_prompt #
```

LANEClient

Use LANEClient to add or modify LANE clients on the switch. (Add a LANE client on the switch if you want to access the switch console using LANE.)



Note Use the Client attribute to delete, restart, or show LANE clients.

Operators

add, modify

Parameters

Input Parameter	Description	Value/Field Size	Default
[ClientNumber]	Number of the client.	0-125	0
[LanName]	Name of the ELAN for this client to join.	Up to 32 characters	
[ServerType]	Type of LANE server.	LECS, LES	LECS
[ServerAddress]	ATM Address of the LANE server or LECS. If at a local server, enter the switch ATM address.	13-20 byte hex-based/ Up to 59 characters	Registered LECS address
[IPAddress]	IP address of the client.	Dot decimal/ 7-15 characters	No default
[NetMask]	IP netmask of the client. Defaults to the appropriate netmask, based on the class of the IP address (calculated from the first two high bits of the IP address, so it is either 255.0.0.0, 255.255.0.0, or 255.255.255.0). IP netmask must be specified only if IP subnets are used.	Dot decimal/ 7-15 characters	255.0.0.0, 255.255.0.0, or 255.255.255.0.
[MTU]	Maximum transfer unit for the client.	1516, 9234, None	1516

Description

Operator	Parameters/Permissions	Description
add laneclient	[ClientNumber] <clientnumber> [LanName] <lanname> [ServerType] <servertime> [ServerAddress] <serveraddress> [IPAddress] <ipaddress> [NetMask] <netmask> [MTU] <maxtransferunit> Administrator	Creates a new LANE client on the switch. Add a LANE client if you want to access the switch command console using LANE.
modify laneclient	[ClientNumber] <clientnumber> [LanName] <lanname> [ServerType] <servertime> [ServerAddress] <serveraddress> [IPAddress] <ipaddress> [NetMask] <netmask> [MTU] <maxtransferunit> Administrator	Changes an existing LANE client on the switch.
show client	[ClientNumber] <clientnumber> All	Displays all or specified LANE clients on the switch.

Examples

```
switch_prompt # add laneclient
ClientNumber(0) :100
LanName(ELAN100):
ServerType(LECS):
ServerAddress() :39:00:00:00:00:00:11:11:11:11:11:11:11:00:11:22:22:44:55:01
IPAddress()      :101.1.1.100
NetMask(255.0.0.0):
MTU(1516)       :
switch_prompt #
```

```
switch_prompt # modify laneclient
ClientNumber(0) : 100
LanName(ELAN100): New100
ServerType(LECS):
ServerAddress() :39:00:00:00:00:00:11:11:11:11:11:11:11:00:11:22:22:44:55:01
IPAddress(101.1.1.100):
NetMask(255.0.0.0):
MTU(1516)       :
switch_prompt #
```


LECMcast

Use LECMcast to display multicast groups registered by a LANE client.

Operators

show

Parameters.

Input Parameter	Description	Value/Field Size	Default
[ELANNumber]	ELAN number.	0-125	0
[LECIId]	LEC ID of the client.	1-65279 or All	All

Output Parameter	Description
[Mcastid]	BUS identification for the multicast group (range is 2-64).
[Group Macaddress]	Multicast group MAC address.
[MCAST Send VPI/VCI]	Selective multicast Send VCC established by the client.

Descriptions

Operator	Parameters/Permissions	Description
show lecmcast	[ELANNumber] <elannumber> [LECIId] <lecid> Administrator	Displays registered multicast groups.

Examples

```
switch_prompt # show lecmcast 0
```

```
LECIId(0) :
```

```
LECID:2, ATMADDR: 39:00:00:00:00:00:00:00:00:00:28:E8:80:00:00:1D:6B:6E:CC:01
```

```
-----
```

```
McastId           : 2
Group MAC Address  : 01:80:C2:00:00:00
MCAST SEND VPI/VCI : 0/108
```

```
LECID:3, ATMADDR: 39:00:00:00:00:00:00:00:00:00:28:E8:80:00:00:1D:5E:14:D4:01
```

```
-----
```

```
McastId           : 2
Group MAC Address  : 01:80:C2:00:00:00
MCAST SEND VPI/VCI : 0/128
```

```
switch_prompt #
```

LECS

Use LECS to manage the LECS on the network.

Operators

show, start, stop

Parameters

This attribute has no parameters. Just enter **start lecs** or **stop lecs** at the switch prompt.

Descriptions

Operator	Parameters/Permissions	Description
show lecs	All	Displays LECS status.
start lecs	Administrator	Starts an LECS not previously started. If you have stopped an LECS, you must restart it before adding ELANs to the LECS or clients to the ELAN. You normally keep only one LECS in your network, across all ELANs and switches. Creating more than one LECS functionally splits the network unless the databases are fully replicated.
stop lecs	Administrator	Shuts down the LECS on the network.



Note The status of the LECS is persistent on reboot. If you reboot the switch while you have the LECS stopped, it will remain stopped after rebooting. You have to manually start the LECS again.

Examples

```
switch_prompt # start lecs

NOTICE - 'LECS' ***** LECS started *****
switch_prompt #

switch_prompt # stop lecs

confirm (y/n)?: y
NOTICE - 'LECS' ***** LECS shutdown *****
switch_prompt #
```

LECSELAN

Use LECSELAN to manage ELAN entries at the LECS.

Operators

add, delete, modify, show

Parameters

Input Parameter	Description	Value/Field Size	Default
[ELANNumber]	Number of the ELAN to add to the LECS.	0-125	0
[ELANName]	Name of ELAN to add to the LECS.	Up to 32 characters	No default
[LESAddress]	Address of the LES associated with the ELAN.	13-20 byte hex-based/ 59 characters	No default
[ELANType]	The data-link type used by the ELAN.	802.3 (Ethernet), 802.5 (Token Ring)	802.3
[MTU]	Maximum transfer unit for the clients joining this ELAN.	1516, 1580, 4544, or 9234	1516 or 4544
[TLVSet]	The TLV (type, length, and value) set number (set of TLV parameters) corresponding to the members joining this ELAN.	1-32767	No default

Output Parameter	Description
[ELAN Number]	Number of the ELAN to add to the LECS.
[ELAN Name]	Name of ELAN to add to the LECS.
[LES Address]	Address of the LES associated with the ELAN.
[ELAN Type]	The data-link type used by the ELAN.
[MTU]	Maximum transfer unit for the clients joining this ELAN.

Descriptions

Operator	Parameters/Permissions	Description
add lecselan	[ELANNumber] <elannumber> [ELANName] <elaname> [LESAddress] <lesatmaddress> [ELANType] <elantype> [MTU] <maxframesize> [TLVSet] <tlvsetid> Administrator	Creates a specified ELAN on the LECS. Enter add lecselan to add an ELAN the long way—with the add buselan , add leselan , and add lecselan commands. Enter show elan before this command to display the LES address to be added to the LECS.
delete lecselan	[ELANNumber] <elannumber> Administrator	Removes an existing ELAN from the LECS.
modify lecselan	[ELANNumber] <elannumber> [ELANName] <elaname> [LESAddress] <lesatmaddress> [ELANType] <elantype> [MTU] <maxframesize> [TLVSet] <tlvsetid> Administrator	Modifies the parameters of a specified ELAN on the LECS by deleting and then recreating the ELAN. Enter modify lecselan if you are moving an ELAN and have a new LES and BUS ATM address to assign to the ELAN (or if you want to change the ELAN type).
show lecselan	[ELANNumber] <elannumber> All	Displays a specified ELAN configuration on the LECS.

Examples

```

switch_prompt # add lecselan
ELANNumber(0) : 4
ELANName(ELAN004) :
LESAddress(39:00:00:00:00:00:00:00:00:14:15:00:00:20:D4:14:15:04:02):
ELANType(802.3) :
MTU(1516) :
TLVSet() :

switch_prompt #

switch_prompt # delete lecselan
ELANNumber(0) : 4

ELAN 4 Configured on LECS
=====
ELAN Number : 4
ELAN Name : ELAN004
LES Address : 39:00:00:00:00:00:00:00:00:14:15:00:00:20:D4:14:15:04:02
ELAN Type : 802.3
MTU : 1516
Confirm(y/n)?y
switch_prompt #

switch_prompt # modify lecselan
ELANNumber(0) :
ELANName(elan1) :
LESAddress(39:00:00:00:00:00:00:00:00:14:15:00:00:20:D4:14:15:00:02):
39:00:00:00:00:00:00:00:00:14:15:00:00:20:D4:14:15:00:04
ELANType(802.3) :
MTU(1516) :
TLVSet() :

switch_prompt #

switch_prompt # show lecselan
ELANNumber(ALL) :

All the ELANs Configured on the LECS
=====
ELAN Number : 0
ELAN Name : elan1
LES Address : 39:00:00:00:00:00:00:00:00:14:15:00:00:20:D4:14:15:00:04
ELAN Type : 802.3
MTU : 1516

switch_prompt #

```

LECSELANLEC

Use LECSELANLEC to manage the way an LECS configures (assigns) a LANE client to an ELAN using the byBestEffort assignment policy. At least one instance of the byBestEffort assignment policy is always in effect at the lowest priority level. Under the byBestEffort policy, client assignment is based on (in this order): ELAN name in the configuration request (if any), client IP address, client MAC address (or for a token ring client, route descriptor), client ATM address. LECSELANLEC also associates a TLV parameter set with the specified LANE client. After the client is assigned to an ELAN, the LECS uses the TLV information to negotiate the quality of connection given the client by the ELAN.



Note Use LECSELANPolicy to set and manage ELAN assignment policies.

Operators

add, delete, modify, show

Parameters

Input Parameter	Description	Value/Field Size	Default
[ATMAddress]	ATM address of the client.	13-20 byte hex-based/ Up to 59 characters	No default
[MACAddress/ RouteDesc]	MAC (media access control) address/Route Descriptor of the client.	SegId: 0-4095 Bridge Num: 0-15	No default
[Layer3Address(IP)]	IP address of the client.	Dot decimal/ 7-15 characters	No default
[ELANNumber]	Number of the ELAN preferred for the client.	0-125	0
[TLVSet]	TLV set number associated with the client.	1-32767	No default

Output Parameter	Description
[Elan #]	Number of the ELAN preferred for the client. (Same as the [ELANNumber] input parameter.)
[MacAddr/ RouteDesc]	MAC (media access control) address/Route Descriptor of the client. (Same as the [MACAddress/RouteDesc] input parameter).
[LECAddress]	ATM address of the client.

Output Parameter	Description
[IP Address]	IP address of the client.
[TLV Set]	TLV set associated with the client.

Descriptions

Operator	Parameters/Permissions	Description
add lecselanlec	[LECAddress] <clientatmaddress> [MACAddress/RouteDesc] <clientmacaddress/routedescriptor> [ELANNumber] <elannumber> Administrator	Maps a LANE client to a preferred ELAN and TLV set. The client must have unique IP, ATM, and MAC address for an entry to be accepted. You do not have to all addresses, but whatever you specify has to be unique. The addresses must be added before entering this command because you cannot modify these address parameters once they are set. If modification is needed, you must first enter delete lecselanlec , and then create another LECSELANLEC by entering add lecselanlec .
delete lecselanlec	[LECAddress/MACAddress/RouteDesc] <clientatm/macaddress/routedescriptor> Administrator	Removes a LANE client entry from the LECS. The length of the address (ATM, MAC, Route Descriptor) that you specify determines which LANE client entry is deleted.
modify lecselanlec	[LECAddress/MACAddress/RouteDesc] <clientatm/macaddress/routedescriptor> [ELANNumber] <elannumber> Administrator	Changes the LANE client information at the LECS. You only can modify the ELAN number with this command. The only way to change client addresses with this command is to enter delete lecselanlec and then enter add lecselanlec , adding the new addresses within that command.
show lecselanlec	[ELANNumber] <elannumber> All	Displays the LANE clients configured on an existing ELAN. You can see the ATM and MAC addresses of LANE clients by entering this command.

Examples

```
switch_prompt # add lecselanlec
LECAddress: 39:00:00:00:00:00:00:00:00:14:7B:00:00:20:D4:14:7B:00:01
MACAddress/RouteDesc: 01:02:03:04:05:06
ELANNumber(0):1
switch_prompt #
```

```
switch_prompt # delete lecselanlec
LECAddress/MACaddress/RouteDesc(): 39:00:00:00:00:00:00:00:20:D4:14:05:80:11:22:33:44:55:66:00
ELANNum      :10
Confirm(y/n): y
switch_prompt #
```

```
switch_prompt # show lecselanlec
ELANNumber(ALL): 1
Elan#  MacAddr/RouteDesc  LECAddress
=====
1      01:02:03:04:05:06
      39:00:00:00:00:00:00:00:00:14:7B:00:00:20:D4:14:7B:00:01
switch_prompt #
```

```
switch_prompt # modify lecselanlec
LECAddress/MACaddress/RouteDesc: 01:02:03:04:05:06
ELANNumber(0): 2
switch_prompt #
```

```
switch_prompt # show lecselanlec
ELANNumber(ALL): 2

Elan#  MacAddr/RouteDesc  LECAddress
=====
2      01:02:03:04:05:06
      39:00:00:00:00:00:00:00:00:14:7B:00:00:20:D4:14:7B:00:01
switch_prompt #
```

LECSELANNameTable

Use LECSELANNameTable to manage the ELAN name table. The table maps names with ELAN numbers. The table determines how an LECS assigns a LANE client to an ELAN using the byELANName assignment policy.



Note Use LECSELANPolicy to manage ELAN assignment policies.

Operators

add, delete, show

Parameters

Input Parameter	Description	Value/Field Size	Default
[ELANNumber]	ELAN number to map to a name.	0-125	0
[ELANName]	Name for the ELAN.	Up to 32 characters	No default

Output Parameter	Description
[ELAN ID]	ELAN number. (Same as [ELANNumber] input parameter.)
[ELAN Name]	Name for the ELAN.

Descriptions

Operator	Parameters/Permissions	Description
add lecselannametable	[ELANNumber] <elannumber> [ELANName] <elaname> Administrator	Adds an entry to the ELAN name table.
delete lecselannametable	[ELANNumber] <elannumber> [ELANName] <elaname> Administrator	Deletes an entry from the ELAN name table.
show lecselannametable	All	Displays the ELAN name table.

Examples

```
switch_prompt # show lecselannametable
```

```
ELAN ID  ELAN Name
```

```
=====
```

```
0          ELAN1
```

```
switch_prompt #
```

LECSELANPolicy

Use LECSELANPolicy to manage the ELAN assignment policy table. ELAN policies determine how LANE clients are configured (assigned) to ELANs by the LECS. The LECS uses the policy with the highest priority first, the policy with the second highest priority next, and so on. If the LECS cannot make an assignment using any of the policies, the client is assigned to the default ELAN. If there is no default ELAN, the configuration request is dropped.



Note The ELAN policy table allows you to set up priorities for each of the policies. Priorities are numbers in the range 1-65000. Lower numbers represent higher priorities. If more than one policy is set up to have the same priority, then each of the policies must be able to assign the client to the same ELAN. If that is not the case, the next lower priority policy is used to decide the assignment.

Operators

add, delete, modify, show

Parameters

Input Parameter	Description	Value/Field Size	Default
[PolicyIndex]	User-defined index number.	1-6500	No default
[Type]	Policy type (see Table 2-4).	1-7: byBestEffort (1), byATMAddress (2), byMacAddress (3), byRouteDescriptor (4), byLANType (5), byPacketSize (6), byELANName (7)	No default
[Priority]	Priority of the policy type. Lower numbers represent higher priorities.	1-65000	No default

Output Parameter	Description
[Index]	User-defined index number. (Same as the [PolicyIndex] input parameter.)
[Assignment Policy]	Policy type. (Same as the [Type] input parameter.)
[Priority Value]	Priority of the policy type. (Same as the [Priority] input parameter.)

Descriptions

Operator	Parameters/Permissions	Description
add lecselanpolicy	[PolicyIndex] <policyindex> [Type] <type> [Priority] <priority> Administrator	Adds an entry to the ELAN policy table.
delete lecselanpolicy	[PolicyIndex] <policyindex> Administrator	Deletes an entry from the ELAN policy table.
modify lecselanpolicy	[PolicyIndex] <policyindex> [Type] <type> [Priority] <priority> Administrator	Modifies an entry in the ELAN policy table.
show lecselanpolicy	All	Displays the ELAN policy table.

Table 2-4 ELAN Assignment Policies

Policy Type	Description
1 (byBestEffort)	This is a proprietary assignment policy. By this policy, if the client configuration request specifies a preferred ELAN name, the LECS attempts to assign the client to the corresponding ELAN number. If no name is specified, the following information is used in sequence to assign the client to an ELAN number: layer 3 (IP) address, MAC address (or, for a token ring client, route descriptor), ATM address. If the above three fail, the LECS assigns the client to the default ELAN. At least one instance of this policy is always in effect at the lowest priority level.
2 (byATMAddress)	The LECS assigns the client based on information set up in the ATM address table. Use LECSELANLEC to manage entries in this table.
3 (byMacAddress)	The LECS assigns the client based on information set up in the MAC address table. Use LECSELANLEC to manage entries in this table.
4 (byRouteDescriptor)	The LECS assigns the client based on information set up in the Route Descriptor table. Use LECSELANLEC to manage entries in this table.
5 (byLANType)	The LECS assigns the client based on the LAN type specified by the client configuration request.
6 (byPacketSize)	The LECS assigns the client based on information set up in the ELAN Packet Size table. Use LECSPacketSizes to manage entries in this table.
7 (byELANName)	The LECS assigns the client based on information set up in the ELAN Name table. Use LECSELANNameTable to manage entries in this table.

Examples

```
switch_prompt # show lecselanpolicy
```

Index	Assignment Policy	Priority Value
1	Best Effort (Proprietary)	65001
2	By ATM Address	2000
7	By Route Descriptor	4000
4	By LAN Type	5000
10	By Packet Size	6000

```
switch_prompt #
```

```
switch_prompt # add lecselanpolicy
```

```
PolicyIndex()      : 3
Type()             : 3
Priority()          : 3000
```

```
switch_prompt #
```

```
switch_prompt # delete lecselanpolicy
```

```
PolicyIndex()      : 7
```

```
switch_prompt #
```

```
switch_prompt # modify lecselanpolicy
```

```
PolicyIndex()      : 10
Type()             :
Priority()          : 7000
```

```
switch_prompt #
```

```
switch_prompt # show lecselanpolicy
```

Index	Assignment Policy	Priority Value
1	Best Effort (Proprietary)	65001
2	By ATM Address	2000
3	By MAC Address	3000
5	By LAN Type	5000
10	By Packet Size	7000

```
switch_prompt #
```

LECSErrorLog

Use LECSErrorLog to display the log maintained by the LECS to track configuration request failures. You can control the log using LECSErrorLogControl.



Note The log can contain up to 128 entries. After 128 entries, no additional entries are logged until all current entries are deleted.

Operators

delete, show

Parameters

This attribute has no input parameters.

Output Parameter	Description
[ATM Address]	ATM address of the client associated with the error.
[ErrorCode]	Decimal code that shows why the error occurred (see Table 2-5).
[SysUpTime]	Time the error occurred with respect to switch up-time in hours, seconds, minutes.

Descriptions

Operator	Parameters/Permissions	Description
<code>delete lecseerrorlog</code>	Administrator	Deletes all entries in the LECS error log.
<code>show lecseerrorlog</code>	All	Displays the LECS error log.

Table 2-5 LECSErrorLog Error Codes

Code	Name	Meaning
0	Success	Successful Response
1	Version not supported	VERSION field of request contains a value higher than that supported.

Table 2-5 LECSErrorLog Error Codes (Continued)

Code	Name	Meaning
2	Invalid request parameters	The parameters given are incompatible with the ELAN.
4	Duplicate LAN destination registration	SOURCE-LAN-DESTINATION duplicates a previously-registered LAN destination.
5	Duplicate ATM address	SOURCE-LAN-DESTINATION duplicates a previously-registered ATM address.
6	Insufficient resources to grant request	Responder is unable to grant request for reasons such as insufficient table space or ability to establish VCCs.
7	Access denied	Request denied for security reasons.
8	Invalid REQUESTOR-ID	LECID field is not zero.
9	Invalid LAN destination	LAN destination is a multicast address; or, LAN destination is a route descriptor on an Ethernet/802.3 ELAN.
10	Invalid ATM address	Source or target ATM address is not in a recognizable format or is not valid.
20	No configuration	LE client is not recognized.
21	LE_CONFIGURE Error	Parameters supplied give conflicting answers. May also be used to refuse service without giving a specific reason.
22	Insufficient information	LE client has not provided sufficient information to allow the LECS to assign it to a specific ELAN.
24	TLV not found	There are no TLVs present in the set of TLVs for this emulated LAN that can be returned with the Config-Frag-Info TLV passed in the LE_CONFIGURE_REQUEST message.

Examples

```
switch_prompt # delete lecseerrorlog
```

```
switch_prompt #
```

```
switch_prompt # show lecseerrorlog
```

```
ATM Address                               ErrorCode SysUpTime
=====
39:00:00:00:00:00:00:00:00:00:14:17:80:00:20:d4:14:17:80      20      02:21:10
```

```
switch_prompt #
```


LECSErrorLogControl

Use LECSErrorLogControl to control the LECS error log. The LECS error log contains information on LECS configuration request failures.

Operators

modify, show

Parameters

Input Parameter	Description	Value/Field Size	Default
[ErrorLogStatus]	Enables or disables the LECS error log	Enable, Disable	No default

Output Parameter	Description
[Administrative Status]	Administrative status of the LECS error log. Possible values are: Enabled or Disabled. (Same as the [ErrorLogStatus] input parameter.)
[Operation Status]	Operational status of the LECS error log. Possible values are: Active, Disabled, Failed, Out-of-Resources, Other (see Table 2-6).
[Log Last Entry Index]	Index of last entry in the log. The log can contain up to 128 entries. The entries are written in top-down order (starting with index 128, then 127, 126, 125, and so forth). After 128 entries, no additional entries are logged until all current entries are deleted. Use the <code>delete lecserrorlog</code> command to delete all entries.

Descriptions

Operator	Parameters/Permissions	Description
<code>modify lecserrorlogcontrol</code>	[ErrorLogStatus] <errorlogstatus> Administrator	Enables or disables the LECS error log.
<code>show lecserrorlogcontrol</code>	All	Displays LECS error log control information.

Table 2-6 LECSErrorLog Status

Value	Description
Active	Error logging enabled.
Disabled	Error logging disabled.
Failed	Failed to start error log for reasons other than out-of-resources.
Other	Unspecified error log problems.
Out-of-Resources	Out of buffer space to maintain error log.

Examples

```
switch_prompt # set lecserrorlogcontrol  
ErrorLogStatus(Disabled) : enable
```

```
switch_prompt #
```

```
switch_prompt # show lecserrorlogcontrol
```

```
Administrative Status : Disabled  
Operation Status      : Disabled  
Clear Log Flag        : No operation  
Log Max Entries       : 128  
Log Last Entry Index  : 0
```

```
switch_prompt #
```

LECSNeighbor

Use LECSNeighbor to add or delete LECS synchronization neighbors. The LECS neighbors are on other switches and communicate with the LECS on this switch (local LECS). The LECS neighbors provide the local LECS with information about LES servers attached directly to them. In turn, the local LECS provides its LECS neighbors with information about LES servers attached directly to it. From the perspective of each remote LECS, the local LECS is an LECS neighbor.



Note An LES is considered directly attached to an LECS if it has established a VCC to that LECS (to get configuration information from that LECS). The LES is not necessarily on the same switch as the LECS to which it is directly attached. Each LES is colocated with a BUS. Though the LES and BUS are separate entities, the two together are considered an instance of LES/BUS servers. The BUS is not attached to an LECS, but it exchanges information with the LECS indirectly through the LES colocated with the BUS.

Operators

add, delete

Parameters

Input Parameter	Description	Value/Field Size	Default
[NeighborATMAddress]	ATM address of the LECS neighbor to add or delete.		No Default

Descriptions

Operator	Parameters/Permissions	Description
add lecsneighbor	[NeighborATMAddress] <neighboratmaddress> Administrator	Adds an LECS neighbor.
delete lecsneighbor	[NeighborATMAddress] <neighboratmaddress>	Deletes an LECS neighbor.

LECSNeighbor

Examples

```
switch_prompt # add lecsneighbor  
NeighborATMAddress()      :  
  
switch_prompt # delete lecsneighbor  
NeighborATMAddress()      :
```

LECSNeighborInfo

Use LECSNeighborInfo to display status information about LECS neighbors. The LECS neighbors are remote LECS servers that are known to (communicate with) the LECS on the switch (local LECS). The information includes the identity of each LECS neighbor, the VPI/VCI and state of the outgoing leaf connection to that neighbor (point-to-multipoint connection from the local LECS), and the VPI/VCI of the incoming VCC from the LECS neighbor to the local LECS.

Operators

show

Parameters

This attribute has no input parameters

Output Parameter	Description
[Neighbor ATM Address]	ATM address of the LECS neighbor.
[Outgoing State]	State of the leaf connection to this neighbor as part of the LECS Synchronization VCC (point-to-multipoint connection from the local LECS to the LECS neighbor). Possible values are: Inactive, Connecting, Active, or Retry Wait.
[Incoming VPI/VCI]	VPI/VCI of the VCC to the local LECS from the neighbor.

Descriptions

Operator	Parameters/Permissions	Description
show lecsneighborinfo	Administrator	Shows status information on LECS neighbors.

Examples

```
switch_prompt # show lecsneighborinfo
```

```
LECS Sync PMP VCC VPI/VCI : 0/0
```

Neighbor ATM Address	Outgoing State	Incoming VPI/VCI
50:a0:39:00:00:00:00:00:00:14:4a:00:00:20:d4:14:4a:00:00	Connecting	0/34
50:a0:39:00:00:00:00:00:00:14:4a:01:00:20:d4:14:4a:01:00	Active	0/33

```
switch_prompt #
```

LECSServerList

Use `LECSServerList` to display the list of LES/BUS servers known to the LECS on the switch (local LECS). The information is sorted by ELAN number (according to ELANs supported by the LES/BUS servers). The LES/BUS servers can be known to the local LECS in either of two ways: The LES is attached directly to the local LECS and is sending configuration requests to it; or, the LES is attached directly to a neighbor LECS that exchanges information with the local LECS through LECS-LECS synchronization.



Note An LES is considered directly attached to an LECS if it has established a VCC to that LECS (to get configuration information from that LECS). The LES is not necessarily on the same switch as the LECS to which it is directly attached. Each LES is colocated with a BUS. Though the LES and BUS are separate entities, the two together are considered an instance of LES/BUS servers. The BUS is not attached to an LECS, but it exchanges information with the LECS indirectly through the LES colocated with the BUS.

Operators

show

Parameters

Input Parameter	Description	Value/Field Size	Default
[ELANNumber]	ELAN for which information is requested.	0-125 or All	All

Output Parameter	Description
[Address]	ATM address of the server.
[Learned From]	ATM address of the LECS from which the server information was obtained.
[Alive Time]	Time (in seconds) for which the server is assumed alive by the LECS.
[Locally Attached]	Indicates whether or not the server is attached directly to the LECS.

If the server is attached directly, the **show lecsserverlist** command displays the following additional fields:

[Server ID]	Unique (within the ELAN) ID representing the LES.
[LECIId Range]	LEC identification range assigned to the LES.

Output Parameter	Description
[Config Direct VCC]	VPI/VCI values of the configure direct VCC to the server.

Descriptions

Operator	Parameters/Permissions	Description
show lecsserverlist	[ELANNumber] <elannumber> Administrator	Shows LES servers known to the LECS.

Examples

```
switch_prompt # show lecsserverlist
ELANNumber(ALL) : 0

LES servers known for ELAN 0
=====

ATM Address      : 39:00:00:00:00:00:00:00:00:00:14:BF:80:00:20:D4:14:BF:80:02
Learned From (LECS): 39:00:00:00:00:00:00:00:00:00:14:BF:80:00:20:D4:14:BF:80:01
Alive Time (secs) : 20
Locally Attached  : No
Config Direct VCC : --
Server ID         : --
LECID Range       : --

ATM Address      : 39:00:00:00:00:00:00:00:00:00:28:E8:80:00:20:D4:28:E8:80:02
Learned From (LECS): 39:00:00:00:00:00:00:00:00:00:28:E8:80:00:20:D4:28:E8:80:01
Alive Time (secs) : 29
Locally Attached  : Yes
Config Direct VCC : 2/93
Server ID         : 0x0008
LECID Range       : 0x2000 - 0x23FF

switch_prompt #
```

LECSPacketSizes

Use LECSPacketSizes to manage the ELAN packet size table. The table maps packet sizes (MTUs) with ELAN numbers. The table determines how an LECS assigns a LANE client to an ELAN using the byPacketSize assignment policy.



Note Use LECSELANPolicy to manage ELAN assignment policies.

Operators

add, delete, show

Parameters

Input Parameter	Description	Value/Field Size	Default
[ELANNumber]	ELAN number to map to a packet size.	0-125	0
[PacketSize]	Packet size to associate with the ELAN number.	0 (unspecified), 1516, 4544, 9234, 18190	0

Output Parameter	Description
[ELAN ID]	ELAN number to use for the packet size request. (Same as the [ELANNumber] input parameter.)
[Packet Size]	Packet size associated with the ELAN number.

Descriptions

Operator	Parameters/Permissions	Description
add lecs packetsizes	[ELANNumber] <elannumber> [PacketSize] <packetsize> Administrator	Adds an entry to the packet size table.
delete lecs packetsizes	[ELANNumber] <elannumber> [PacketSize] <packetsize> Administrator	Deletes an entry from the packet size table.

Operator	Parameters/Permissions	Description
show lecpacketsizes	Administrator	Displays entries in the packet size table.

Examples

```
switch_prompt # add lecpacketsizes
ELANNumber(0)      : 1
PacketSize(0)      : 1516
```

```
switch_prompt #
```

```
switch_prompt # delete lecpacketsizes
ELANNumber(0)      : 1
PacketSize(0)      : 1516
```

```
switch_prompt #
```

```
switch_prompt # show lecpacketsizes
```

```
ELAN ID  Packet Size
=====
0         0 (implies "unspecified")
1         1516
1         4544
2         9234
2        18190
```

```
switch_prompt #
```

LECSStat

Use LECSStat to display statistics on configuration requests to the LECS.

Operator

show

Parameters

This attribute has no input parameters.

Output Parameter	Description
[Successful Configuration Requests]	Number of successful configuration requests.
[Bad Configuration Requests]	Number of bad configuration requests.
[Invalid Request Parameters]	Number of configuration requests with invalid request parameters.
[Insufficient Resources]	Number of configuration requests LECS could not process due to insufficient resources.
[Access Denied]	Number of configuration requests for which LECS denied access to assign an ELAN.
[Invalid Requester Ids]	Number of configuration requests with invalid requester IDs.
[Invalid Destination]	Number of configuration requests with an invalid destination address.
[Invalid Address]	Number of configuration requests with an invalid MAC/ATM address.
[No. LEC Configs]	Number of LANE client configuration requests for which LECS could not find configuration.
[Configuration Errors]	Number of configuration request errors.
[Insufficient Information]	Number of configuration requests with insufficient information.

Description

Operator	Parameters/Permissions	Description
show lecstat	All	Displays statistical information about configuration requests to the LECS.

Example

```
switch_prompt # show lecsstat
```

```
Statistics on LECS
```

```
=====
Successful Configuration Requests : 3
Bad Configuration Requests       : 0
Invalid Request Parameters       : 1
Insufficient Resources           : 0
Access Denied                   : 0
Invalid Requester Ids           : 0
Invalid Destination              : 0
Invalid Address                  : 0
No. LEC Configs                 : 0
Configuration Errors             : 0
Insufficient Information         : 0
switch_prompt #
```

LECSTLVParam

Use LECSTLVParam to remove a TLV parameter from a TLV set on the LECS.

Operators

delete

Parameters

Input Parameter	Description	Value/Field Size	Default
[TLVSetNumber]	Identifier of a TLV parameter set on the LECS.	1-32767	1
[TLVIndex]	Identifier of a specific TLV in the TLV set.	1-15	1

Output Parameter	Description
[TlvIndex]	Number that identifies the specific TLV parameter in the TLV set.
[TLVDescription]	Description of the TLV parameter.
[Value]	Value of the TLV parameter.

Descriptions

Operator	Parameters/Permissions	Description
delete lecstlvparam	[TLVSetNumber] <tlvsetnumber> [TLVIndex] <tlvindex> Administrator	Removes a TLV parameter from a TLV set on the LECS. Use show lecstlvset before entering this command, so you know the index number of the TLV parameter you want to delete.

Examples

The **show lecstlvset** example is used here to show how **delete lecstlvparam** works. Observe that [2] in **show lecstlvset** is [Max Unknown Frame Time]. That is why [Max Unknown Frame Time] appears in **delete lecstlvparam** when “2” is entered at the [TLVIndex] prompt.

```
switch_prompt # show lecstlvset
```

```
TlvsetNumber(ALL) : 2
      TlvIndex  TlvDescription      Value
=====
TLVSet 2 :
      1      Control Timeout      200
      2      Max Unknown Frame Time  4
      6      Arp Aging Time      250
      7      Forward Delay      30
switch_prompt #
```

```
switch_prompt # delete lecstlvparam
```

```
TlvsetNumber() : 2
TlvIndex() : 2

      TLVIndex  TLVDescription      Value
=====
      2      Max Unknown Frame Count  4
Confirm(y/n)? : y
switch_prompt #
```

LECSTLVSet

Use LECSTLVSet to manage TLV parameters on the LECS. A TLV set is a collection of TLV parameters associated with an ELAN.

Operators

add, delete, modify, show

Parameters

Input Parameter	Description	Value/Field Size	Default
[TLVSetNumber]	Number that identifies the set of TLV parameters on the LECS.	1-32767	1
[ControlTimeout]	Time-out period used for timing out most request/response control-frame interactions.	10-300 seconds	No default
[MaxUnknownFrameCount]	Total counter frames a LANE client will send to the LECS for a given unicast LAN destination.	1-10	No default
[MaxUnknownFrameTime]	Total time frames a LANE client will send the LECS for a given unicast LAN destination.	1-160 seconds	No default
[VCCTimeout]	Time-out period for releasing a data direct VCC on an LEC if it has not been used to transmit or receive any data.	0-65535 seconds	No default
[MaxRetryCount]	Maximum number of times a LEC should try for a given LAN destination.	0-2	No default
[ArpAgingTime]	Maximum time that a LEC maintains an entry in its cache in the absence of updates.	10-300 seconds	No default
[ForwardDelay]	Maximum time a LEC will maintain an entry for a non-local MAC address in its cache in the absence of updates.	4-30 seconds	No default
[ArpResponseTime]	Maximum time that the LEC expects a request/response cycle to take.	1-30 seconds	No default

Input Parameter	Description	Value/Field Size	Default
[FlushTimeout]	Time limit on flush response after flush request has been sent, before taking recovery action.	1-4 seconds	No default
[PathSwitchingDelay]	Time since sending a frame to the LECS after which the LANE client may assume that the frame has been either discarded or delivered to the recipient.	1-8 seconds	No default
[LocalSegId]	Segment ID of the ELAN.	0-4095 seconds	No default
[MulticastSendVCCType]	Signaling parameter used by the LEC when establishing multicast send VCC.	0-2	No default
[MulticastSendVCCAvgRate]	Signaling parameter used by the LEC when establishing multicast send VCC.	0-370370 cells/s	No default
[MulticastSendVCCPeakRate]	Signaling parameter used by the LEC when establishing multicast send VCC.	0-370370 cells/s	No default
[ConnectionCompeteTime]	Time period in which data or a message is expected from a calling party when establishing a connection.	1-10 seconds	No default
[MPSKeepAliveTime]	MPS Keep Alive Time.		
[MPSKeepAliveLifeTime]	MPS Keep Alive Life Time.		
[MPSInternetProtocols]	MPS Internetwork Layer Protocols.		
[MPSInitialRetryTime]	MPS Initial Retry Time.		
[MPSRetryTimeMaximum]	MPS Retry Time Maximum.		
[MPSGiveupTime]	MPS Give-up Time.		
[MPSDefaultHoldingTime]	MPS Default Holding Time.		
[MPCSetupFrameCount]	MPC Set-up Frame Count.		
[MPCSetupFrameTime]	MPC Set-up Frame Time.		
[MPCFlowProtocols]	MPC Flow Detection Protocols.		
[MPCRetryTime]	MPC Initial Retry Time.		

Input Parameter	Description	Value/Field Size	Default
[MPCMaxRetryTime]	MPC Retry Time Maximum.		

Output Parameter	Description
[TlvIndex]	Number that identifies the specific TLV parameter in the TLV set.
[TLVDescription]	Description of the TLV parameter.
[Value]	Value of the TLV parameter.

Descriptions

Operator	Parameters/Permissions	Description
add lecstlvset	[TLVSetNumber] <tlvsetnumber> [ControlTimeout] <controltimeout> [MaxUnknownFrameCount] <maxunknframecount> [MaxUnknownFrameTime] <maxunknframetime> [VCCTimeout] <vcctimeout> [MaxRetryCount] <maxretrycount> [ArpAgingTime] <arpagingtime> [ForwardDelay] <forwarddelay> [ArpResponseTime] <arpresponsetime> [FlushTimeout] <flushtimeout> [PathSwitchingDelay] <pathswitchingdelay> [LocalSegId] <localsegid> [MulticastSendVCCType] <multicastsendvcctype> [MulticastSendVCCAvgRate] <multisendvccavgrate> [MulticastSendVCCPeakRate] <multicastsendvccpkrate> [ConnectionCompeteTime] <connectioncompetetime> [MPSKeepAliveTime] <mpskeepalivetime> [MPSKeepAliveLifeTime] <mpskeepalivelifetime> [MPSInternetProtocols] <mpsinternetprotocols> [MPSInitialRetryTime] <mpsinitialretrytime> [MPSRetryTimeMaximum] <mpsretrytimemaximum> [MPSGiveupTime] <mpsgiveuptime> [MPSDefaultHoldingTime] <mpsdefaultholdingtime> [MPCSetupFrameCount] <mpcsetupframecount> [MPCSetupFrameTime] <mpcsetupframetime> [MPCFlowProtocols] <mpcflowprotocols> [MPCRetryTime] <mpcretrytime> [MPCMaxRetryTime] <mpcmaxretrytime> Administrator	Creates a TLV set on the LECS.
delete lecstlvset	[TLVSetNumber] <tlvsetnumber> Administrator	Removes a TLV set from the LECS.

Operator	Parameters/Permissions	Description
modify lecstlvset	[TLVSetNumber] <tlvsetnumber> [ControlTimeout] <controvertimeout> [MaxUnknownFrameCount] <maxunknframecount> [MaxUnknownFrameTime] <maxunknframetime> [VCCTimeout] <vcctimeout> [MaxRetryCount] <maxretrycount> [ArpAgingTime] <arpagingtime> [ForwardDelay] <forwarddelay> [ArpResponseTime] <arpresponsetime> [FlushTimeout] <flushtimeout> [PathSwitchingDelay] <pathswitchingdelay> [LocalSegId] <localsegid> [MulticastSendVCCType] <multicastsendvcctype> [MulticastSendVCCAvgRate] <multicastsendvccavgrate> [MulticastSendVCCPeakRate] <multicastsendvccpkrate> [ConnectionCompeteTime] <connectioncompetetime> [MPSKeepAliveTime] <mpskeepalivetime> [MPSKeepAliveLifeTime] <mpskeepalivelifetime> [MPSInternetProtocols] <mpsinternetprotocols> [MPSInitialRetryTime] <mpsinitialretrytime> [MPSRetryTimeMaximum] <mpsretrytimemaximum> [MPSGiveupTime] <mpsgiveuptime> [MPSDefaultHoldingTime] <mpsdefaultholdingtime> [MPCSetupFrameCount] <mpcsetupframecount> [MPCSetupFrameTime] <mpcsetupframetime> [MPCFlowProtocols] <mpcflowprotocols> [MPCRetryTime] <mpcretrytime> [MPCMaxRetryTime] <mpcmaxretrytime>	Changes an existing TLV set on the LECS.
Administrator		
show lecstlvset	[TLVSetNumber] <tlvsetnumber>	Displays a TLV set on the LECS.
All		

Examples

```
switch_prompt # add lecstlvset
TLVSetNumber[1-32767](1)           : 3
ControlTimeout[10-300]()             : 200
MaxUnknownFrameCount[1-10]()         : 5
MaxUnknownFrameTime[1-60]()          : 50
VCCTimeout[0-65535]()                : 50000
MaxRetryCount[0-2]()                 : 1
ArpAgingTime[10-300]()               : 250
ForwardDelay[4-30]()                 : 27
ArpResponseTime[1-30]()               : 27
FlushTimeout[1-4]()                  : 2
PathSwitchingDelay[1-8]()             : 2
LocalSegId[0-4095]()                 : 2000
MulticastSendVCCType[0-2]()           : 1
MulticastSendVCCAvgRate[0-370370]()   :
MulticastSendVCCPeakRate[0-370370]() :
ConnectionCompeteTime[1-10]()         : 8
MPSKeepAliveTime()                  :
MPSKeepAliveLifeTime()               :
MPSInternetProtocols()                :
MPSInitialRetryTime()                 :
MPSRetryTimeMaximum()                 :
MPSGiveupTime()                       :
MPSTimeoutHoldingTime()               :
MPCSetupFrameCount()                  :
MPCSetupFrameTime()                   :
MPCFlowProtocols()                    :
MPCRetryTime()                        :
MPCMaxRetryTime()                     :
switch_prompt #
```

```
switch_prompt # delete lecstlvset
TlvsetNumber(1): 2
```

TlvIndex	TlvDescription	Value
=====		
TLVSet 2 :		
1	Control Timeout	200
3	Max Unknown Frame Time	2
6	Arp Aging Time	250
7	Forward Delay	30

Confirm(y/n)?:y
switch_prompt #

```
switch_prompt # modify lecstlvset
TLVSetNumber[1-32767](1)           : 3
ControlTimeout[10-300](200)         : 250
MaxUnknownFrameCount[1-10](5)       : 4
MaxUnknownFrameTime[1-60](50)       : 40
VCCTimeout[0-65535](50000)          : 40000
MaxRetryCount[0-2](1)                : 2
ArpAgingTime[10-300](250)            : 200
ForwardDelay[4-30](27)                : 20
ArpResponseTime[1-30](27)             : 20
FlushTimeout[1-4](2)                  : 3
PathSwitchingDelay[1-8](2)            : 5
LocalSegId[0-4095](2000)              : 2500
MulticastSendVCCType[0-2](1)          : 2
MulticastSendVCCAvgRate[0-370370]()   :
MulticastSendVCCPeakRate[0-370370]() :
ConnectionCompeteTime[1-10](8)        : 6
```

```

MPSKeepAliveTime()           :
MPSKeepAliveLifeTime()       :
MPSInternetProtocols()       :
MPSInitialRetryTime()        :
MPSRetryTimeMaximum()        :
MPSGiveupTime()              :
MPSTimeoutHoldingTime()       :
MPCSetupFrameCount()         :
MPCSetupFrameTime()          :
MPCFlowProtocols()           :
MPCRetryTime()               :
MPCMaxRetryTime()            :
switch_prompt #

```

```
switch_prompt # show lecstlvset
```

```
TlvsetNumber(ALL) : 3
```

TlvIndex	TlvDescription	Value
=====		
TLVSet 3 :		
1	Control Timeout	250
2	Max Unknown Frame Count	4
3	Max Unknown Frame Time	40
4	VCC Timeout	40000
5	Max Retry Count	2
6	Arp Aging Time	200
7	Forward Delay	20
8	ARP Response Time	20
9	Flush Timeout	3
10	Path Switching Delay	5
11	Local Seg Id	2500
12	Multicast Send VCC Type	2
15	Connection Complete Time	6

```
switch_prompt #
```

LECSVCC

Use LECSVCC to display VCCs queued to join the LECS. A LANE client sets the VCCs up as part of the LECS connection. You can display but not modify the VCCs (they are not modifiable). As soon as a client joins the LECS, the VCCs are no longer displayed.

Operators

show

Parameters

This attribute has no input parameters.

Output Parameter	Description
[VC Type]	Type of virtual connection.
[VPI/VCI]	VPI/VCI (virtual path/channel identifier) values of Control Direct VCC (virtual channel connection) or Multicast Send VCC.

Descriptions

Operator	Parameters/Permissions	Descriptions
show lecsvcc	[VC Type] < vctype > [VPI/VCI] < vpi/vci > All	Displays the active VCCs (SVCs and PVCs) on the LECS.

Examples

```
switch_prompt # show lecsvcc
```

```
VC Type          VPI/VCI
=====
PVC              0/31
PVC              0/33
SVC              0/112
switch_prompt #
```

LES

Use LES to start and stop the BUS and LES for an ELAN.

Operators

show, start, stop

Parameters

This attribute has no parameters. Just enter **start les** or **stop les** at the switch prompt.

Descriptions

Operator	Parameters/Permissions	Description
show les	All	Shows LES and BUS status.
start les	Administrator	Starts the LES and BUS on the switch.
stop les	Administrator	Stops the LES and BUS on the switch.

Examples

```
switch_prompt # start les
NOTICE - 'ZLESSRV' ***** LES started *****

switch_prompt #

switch_prompt # stop les
          STOPPING LES/BUS
Confirm(y/n)?y
NOTICE - 'ZLESSRV' ***** LES shutdown *****

switch_prompt #

NOTICE - 'ZLESSRV' LES sendjoinresp:
LES Join : 39:00:00:00:00:00:00:00:20:D4:14:15:00:00:20:D4:14:15:00:00
NOTICE - 'ZLESSRV'
Bus Connect 39:00:00:00:00:00:00:00:20:D4:14:15:00:00:20:D4:14:15:00:00
switch_prompt #

switch_prompt # stop les
          STOPPING LES/BUS
Confirm(y/n)?y
NOTICE - 'ZLESSRV' ***** LES shutdown *****

switch_prompt # start les
NOTICE - 'ZLESSRV' ***** LES started *****
switch_prompt # NOTICE - 'ZLESSRV' LES sendjoinresp:
```

LESARP

Use LESARP to display the ARP server table for a specified ELAN. The ARP server table is maintained by the LES for the ELAN.

Operators

show

Parameters

Input Parameter	Description	Value/Field Size	Default
[ELANNumber]	Number of the ELAN served by the LES.	0-125	0

Output Parameter	Description
[LECIId]	LEC identification number of the client.
[MACAddr/RouteDesc]	MAC (media access control) address/Route Descriptor of the client.
[ATM Address]	ATM address of the client.

Descriptions

Operator	Parameters/Permissions	Description
show lesarp	[ElanNumber] <elannumber> All	Displays the ARP table for the specified ELAN.

Example

```
switch_prompt # show lesarp
ELANNumber(0) : 1

ARP Table entries for ELAN ELAN001
=====
LECIId          : 1
MACAddr/RouteDesc: 00:20:D4:14:22:80
ATM Address     : 39:00:00:00:00:00:00:00:20:D4:14:22:80:00:20:D4:14:22:80:00
switch_prompt #
```

LESClient

Use LESClient to manage the mapping between the LES and the LANE clients registered with it. Each LANE client is identified uniquely by its LEC ID.

Operators

delete, show

Parameters

Input Parameter	Description	Value/Field Size	Default
[ELANNumber]	Number of the ELAN served by the LES.	0-125	0
[LECIId]	LEC ID of the client.	1-65279	0

Output Parameter	Description
[LECIId]	LEC ID of the client.
[VPI/VCI]	VPI/VCI (virtual path/channel identifier) values of control direct VCC (virtual channel connection) or multicast send VCC.
[ATM address]	ATM address of the client.
[Flags]	Indicates whether the client is a Proxy or a Non-Proxy client.

Descriptions

Operator	Parameters/Permissions	Description
delete lesclient	[Elan Number] <elannumber> [LECIId] <lecidvalue> Administrator	Removes a client from the specified ELAN.
show lesclient	[Elan Number] <elannumber> All	Displays information about all clients that have joined the specified ELAN.

Examples

```
switch_prompt # delete lesclient
ELANNumber (0):
LECIId (0) : 12
Confirm? (y/n) : y
switch_prompt #
```

```
switch_prompt # show lesclient
ELANNumber (0):
```

```
Client table entries for ELAN ELAN000
=====

LECIId          : 1
VPI/VCI         : 0/215
ATM Address     : 39:00:00:00:00:00:00:00:20:D4:14:2F:00:00:20:D4:14:2F:00:00
Flags           : NONPROXY
switch_prompt #
```


LESELAN

Use LESELAN to manage characteristics of an LES for a specified ELAN. If a BUS corresponding to the LES exists, the characteristics of the LES should match those of the BUS.

Operators

add, delete, modify, show

Parameters

Input Parameter	Description	Value/Field Size	Default
[ELANNumber]	Number of the ELAN served by the LES.	0-125	0
[ELANName]	Name of the ELAN to which the LES belongs.	Up to 32 characters	
[ConnectMethod]	Type of connection used.	PVC, SVC	SVC
[ELANType]	The data-link type used by the ELAN.	802.3 (Ethernet) 802.5 (Token Ring)	802.3
[Multipoint]	Indicates whether control distribute VCC is PMP (point-to-multipoint) or PTP (point-to-point).	Yes: VCC is PMP No: VCC is PTP	Yes
[MTU]	Maximum transfer unit for the clients joining this ELAN.	1516, 1580, 4544, or 9234	1516
[ErrorLogEnable]	Whether or not the BUS and LES error logs are enabled.	Yes, No	No
[MinimumTDEnable]	Whether or not minimum acceptable traffic descriptor negotiation is enabled.	Yes, No	No
[LocalSegmentId]	Local segment ID. (You are prompted for this parameter only if 802.5 is specified for ELANType.)		
[ForwardPeakCellRate]	Minimum forward peak cell rate.	Positive integer	
[BackwardPeakCellRate]	Minimum backward peak cell rate.	Positive integer	

Input Parameter	Description	Value/Field Size	Default
[Distribute]	Establishes nature of control distribute VCC. Possible values are: All or Proxy. All establishes control distribute VCC to all clients. Proxy establishes control distribute VCC only to Proxy clients.	All, Proxy	Proxy
[BUSATMAddress]	ATM address of the BUS (specify if the LES and BUS are not co-located).	13-20 byte hex-based/ Up to 59 characters	

Output Parameter	Description
[ATM Address]	ATM address of the LES on the ELAN.
[Distribute VPI/VCI]	VPI/VCI values of the control direct VCC or multicast send VCC.
[Distribute Method]	Indicates whether the control distribute VCC is established for all clients or for proxy clients only.
[ELAN Type]	Same as the [ELANType] input parameter.

Descriptions

Operator	Parameters/Permissions	Description
add leselan	[ELANNumber] <elannumber> [ELANName] <elaname> [ConnectMethod] <connectmethod> [ELANType] <elantype> [Multipoint] <distributevcctype> [MTU] <maxframesize> [Distribute] <controldistributevccoption> [BUSATMAddress] <busatmaddress> Administrator	Creates a specified ELAN on the LES. Each ELAN must have both an LES and a BUS assigned to it.
delete leselan	[ELANNumber] <elannumber> Administrator	Removes a specified ELAN from the LES and drops all the clients connected to it.

Operator	Parameters/Permissions	Description
modify leselan	[ELANNumber] <elannumber> [ELANName] <elaname> [ConnectMethod] <connectmethod> [ELANType] <elantype> [Multipoint] <distributedccttype> [MTU] <maxframesize> [Distribute] <controldistributedccoption> [BUSATMAddress] <busatmaddress> Administrator	Modifies parameters on the specified ELAN of the LES by deleting and then recreating the ELAN.
show leselan	[ELANNumber] <elannumber> All	Displays which ELANs are currently on the LES.

Examples

The following example creates ELAN 102 with default parameters for LES:

```

switch_prompt # add leselan
ELANNumber(0) : 102
ELANName(ELAN102) :
ConnectMethod(SVC) :
ELANType(802.3) :
Multipoint(YES) :
MTU(1516) :
Distribute(PROXY) :
BUSATMAddress(39:00:00:00:00:00:00:00:20:D4:14:15:00:00:20:D4:14:15:66:02):
switch_prompt #

switch_prompt # delete leselan
ELANNumber(0) : 11
ELAN Number : 11
ELAN Name : ELAN011
ATM Address : 39:00:00:00:00:00:00:11:22:33:44:55:66:00:20:D4:14:15:0B:02
Confirm(y/n)? : y
switch_prompt #

```

LESELAN

The following example resets an ELAN with default parameters:

```
switch_prompt # modify leselan
ELANNumber(0)      : 102
ELANName(ELAN102)  :
ConnectMethod(svc) :
ELANType(802.3)    :
Multipoint(yes)    :
MTU(1516)          : 9234
ErrorLogEnable(no) :
MinimumTDEnable(no):
ForwardPeakCellRate() :
BackwardPeakCellRate() :
Distribute(proxy)   :
BUSATMAddress(39:00:00:00:00:00:00:00:20:D4:14:15:00:00:20:D4:14:15:66:02):

switch_prompt #

switch_prompt # show leselan
ELANNumber(ALL)      : 102

    ELAN : ELAN102

ELAN Number      : 0
ELAN Name        : ELAN102
ATM Address      : 39:00:00:00:00:00:00:00:20:D4:14:15:00:00:20:D4:14:15:66:02
Max Frame Size   : 9234
Connection Method : SVC
Distribute VPI/VCI : 0/0
Distribute Method : PROXY
ELAN Type        : 802.3
Multipoint       : YES
Error Logging     : NO
Min TD Negotiation : NO
BUS Address      : 39:00:00:00:00:00:00:00:20:D4:14:15:00:00:20:D4:14:15:66:02
```

LESErrorLog

Use LESErrorLog to display or clear the LES error log associated with an ELAN.



Note Use the `add leselan` or `modify leselan` commands to enable or disable the LES error log for a specified ELAN.

Operators

`delete`, `show`

Parameters

Input Parameter	Description	Value/Field Size	Default
[ELANNumber]	The number of the ELAN whose LES errors are to be shown or deleted.	0-125	0

Output Parameter	Description
[ATM Address]	ATM address associated with the error.
[ErrorCode]	Decimal code that indicates why the error occurred (See Table 2-7).
[SysUpTime]	Time the error occurred with respect to switch up-time in hours, minutes, and seconds.

Descriptions

Operator	Parameters/Permissions	Description
<code>delete leserrorlog</code>	[ELANNumber] <elannumber> Administrator	Clears the LES error log.
<code>show leserrorlog</code>	Administrator	Displays the LES error log.

Table 2-7 LESErrLog Error Codes

Code	Name	Meaning
0	Success	Successful Response
1	Version not supported	VERSION field of request contains a value higher than that supported.
2	Invalid request parameters	The parameters given are incompatible with the ELAN.
4	Duplicate LAN destination registration	SOURCE-LAN-DESTINATION duplicates a previously-registered LAN destination.
5	Duplicate ATM address	SOURCE-LAN-DESTINATION duplicates a previously-registered ATM address.
6	Insufficient resources to grant request	Responder is unable to grant request for reasons such as insufficient table space or ability to establish VCCs.
7	Access denied	Request denied for security reasons.
8	Invalid REQUESTOR-ID	LECID field is not zero (Configure or Join) or is not LE Client's LECID (others).
9	Invalid LAN destination	LAN destination is a multicast address; or, LAN destination is a route descriptor on an Ethernet/802.3 ELAN.
10	Invalid ATM address	Source or target ATM address is not in a recognizable format or is not valid.
20	No configuration	LE client is not recognized.
21	LE_CONFIGURE Error	Parameters supplied give conflicting answers. May also be used to refuse service without giving a specific reason.
22	Insufficient information	LE client has not provided sufficient information to allow the LECS to assign it to a specific ELAN.
24	TLV not found	There are no TLVs present in the set of TLVs for this emulated LAN that can be returned with the Config-Frag-Info TLV passed in the LE_CONFIGURE_REQUEST message.

Examples

```
switch prompt # show leserrorlog
ELANNumber(ALL) : 1

Error Log Entries for VLAN : 1

ATM Address                               ErrorCode   SysUpTime
39:1:2:3:4:5:6:7:8:9:0:1:2:3:4:5:6:7:8:9    22          01:02:03

switch prompt # clear leserrorlog
ELANNumber(ALL) : 1

Clearing ALL LES ELAN ErrorLog

Confirm(y/n)?y

switch prompt #
```

LESLECStat

Use LESLECStat to display traffic characteristics for clients registered with an LES.

Operators

show

Parameters

Input Parameter	Description	Value/Field Size	Default
[ELANNumber]	Number of the ELAN to which the LES belongs.	0-125	0
[LECIId]	LEC identification number of the specified client.	1-65279	

Output Parameter	Description
[ATMAddress]	ATM address of the LANE client.
[Receives]	Number of multicast, broadcast and unknown forward requests received by the BUS and the LES from this LEC.
[Forwards]	Number of ARP requests forwarded by the BUS and the LES from this LEC.
[Sends]	Number of requests or responses sent to this LEC by LES.

Descriptions

Operator	Parameters/Permissions	Description
show leslecstat	[ELANNumber] <elannumber> [LECIId] <lecid> All	Displays statistical information about LANE clients on a specific ELAN. To verify the LEC ID, enter show client first to obtain the ELAN number.

Examples

```
switch_prompt # show leslecstat
ELANNumber(0) :
LECId(0)      : 3
```

Client 3 statistics for ELAN ELAN000

```
=====
ATM Address  : 39:00:00:00:00:00:00:00:20:D4:14:22:80:00:20:D4:14:22:80:00
Receives     : 2
Forwards     : 0
Sends        : 0
switch_prompt #
```

```
switch_prompt # show leslecstat 3
LECId(0)      :
```

Client statistics for ELAN ELAN003

```
=====
LECId        : 1
ATM address   : 39:00:00:00:00:00:00:00:20:D4:14:22:80:00:20:D4:14:22:83:00
Receives      : 75
Forwards      : 0
Sends         : 0
LECId        : 2
ATM address   : 39:00:00:00:00:00:00:00:20:D4:14:22:80:00:20:D4:15:D4:83:00
Receives      : 10405
Forwards      : 10365
Sends         : 0
switch_prompt #
```

LESLNNInfo

Use LESLNNInfo to show information on VCCs established for an instance of LES/BUS servers. The VCCs are established for LNNI purposes. Each instance of LES/BUS servers establishes two point-to-multipoint and one or more point-to-point VCCs. One point-to-multipoint VCC is from the LES to its LES neighbors. The second point-to-multipoint VCC is from the BUS to its BUS neighbors. One point-to-point VCC is from the LES to its LECS (the LECS to which the LES is directly attached). Another point-to-point VCC might be established from the LES to each LES neighbor for the purpose of synchronizing database information (Cache Synchronization VCC). Information on LES and BUS neighbors is passed to the LES from its LECS. The information is stored in a database accessible to both the LES and BUS. Each instance of LES/BUS servers may serve several ELANs.



Note An LES is considered directly attached to an LECS if it has established a VCC to that LECS (to get configuration information from that LECS). The LES is not necessarily on the same switch as the LECS to which it is directly attached. Each LES is colocated with a BUS. Though the LES and BUS are separate entities, the two together are considered an instance of LES/BUS servers. The BUS is not attached to an LECS, but it exchanges information with the LECS indirectly through the LES colocated with the BUS.

Operators

show

Parameters

Input Parameter	Description	Value/Field Size	Default
[ELANNumber]	ELAN for which information is requested.	0-125 or All	All

Output Parameter	Description
[LES Config Direct VCC]	The VPI/VCI of the point-to-point connection from the LES to its LECS.
[LES Control Co-ordinate VCC]	The VPI/VCI of the outgoing point-to-multipoint connection from the LES.
[BUS Multicast Forward VCC]	The VPI/VCI of the outgoing point-to-multipoint connection from the BUS.

The following information is provided for each neighbor.

[Neighbor Address] ATM address of an LES neighbor (and the BUS colocated with it.).

Output Parameter	Description
[Outgoing Control Coordinate State]	State of the leaf connection to that LES neighbor. Possible values are: Inactive, Connecting, Active, or Retry Wait.
[Incoming Control Coordinate VCC]	The VPI/VCI of the incoming leaf connection from that LES neighbor.
[Outgoing Multicast Forward State]	State of the leaf connection to that BUS neighbor. Possible values are: Inactive, Connecting, Active, or Retry Wait.
[Incoming Multicast Forward VCC]	The VPI/VCI of the incoming leaf connection from that BUS neighbor.
[Cache Synchronization VCC]	The VPI/VCI of the point-to-point connection to the neighbor for purposes of cache synchronization.

Descriptions

Operator	Parameters/Permissions	Description
show leslnniinfo	[ELANNumber] <elannumber>	Displays information on VCCs related to LES/BUS servers

Examples

```
switch_prompt # show leslnniinfo
```

```
ELANNumber(ALL) :
```

```
LNNI Information for ELAN 0
```

```
=====
```

```
LES Configure Direct VCC : 0/35
```

```
LES Control Coordinate VCC (PMP) : 0/39
```

```
BUS Multicast Forward VCC (PMP) : 0/40
```

```
Neighbor Information :
```

```
Neighbor Address : 39:00:00:00:00:00:00:00:00:00:14:90:00:00:20:D4:14:90:00:02
```

```
Outgoing Control Coordinate State : Connected
```

```
Incoming Control Coordinate VCC : 0/41
```

```
Outgoing Multicast Forward State : Connected
```

```
Incoming Multicast Forward VCC : 0/42
```

```
Cache Synchronization VCC : 0/38
```

```
switch_prompt #
```

LESLNNIStat

Use LESLNNIStat to display or clear statistics on control and data packets to or from all LES/BUS servers that support a particular ELAN. The display shows statistics for forwarded packets on a global basis (for all neighbors) and statistics for received packets on a per neighbor basis.

Operators

clear, show

Parameters .

Input Parameter	Description	Value/Field Size	Default
[ELANNumber]	ELAN for which you desire to set or display statistics.	0-125 or All	All

Output Parameter	Description
------------------	-------------

For all neighbors, the following statistics are shown for forwarded packets.

[ARP Requests Forwarded]	Number of ARP requests forwarded by all LES servers.
[ARP Responses Forwarded]	Number of ARP responses forwarded by all BUS servers.
[NARP Requests Forwarded]	Number of NARP requests forwarded by all LES servers.
[FLUSH Requests Forwarded]	Number of FLUSH requests forwarded by all LES servers.
[FLUSH Responses Forwarded]	Number of FLUSH responses forwarded by all LES servers.
[TOPOLOGY Requests Forwarded]	Number of TOPOLOGY requests forwarded by all LES servers.
[Unicast Packets Forwarded]	Number of unicast packets forwarded by the all BUS servers.
[Multicast Packets Forwarded]	Number of multicast packets forwarded by the all BUS servers.
[Broadcast Packets Forwarded]	Number of broadcast packets forwarded by the all BUS servers.

For individual neighbors, the following statistics are shown for packets received from that neighbor.

[Neighbor Address]	ATM address of the neighbor.
[ARP Requests Received]	ARP requests received from the neighbor LES.

Output Parameter	Description
[ARP Responses Received]	ARP responses received from the neighbor LES.
[NARP Requests Received]	NARP requests received from the neighbor LES.
[FLUSH Requests Received]	FLUS requests received from the neighbor LES.
[FLUSH Responses Received]	FLUSH responses received from the neighbor LES.
[TOPOLOGY Requests Received]	TOPOLOGY requests received from the neighbor LES.
[Unicast Packets Received]	Unicast packets received from the neighbor BUS.
[Multicast Packets Received]	Multicast packets received from the neighbor BUS.
[Broadcast Packets Received]	Broadcast packets received from the neighbor BUS.

Descriptions

Operator	Parameters/Permissions	Description
<code>clear leslnnistat</code>	[ELANNumber] <elannumber> Administrator	Clears statistics for the specified ELAN.
<code>show leslnnistat</code>	[ELANNumber] <elannumber> All	Displays statistics for the specified ELAN.

Examples

```
switch_prompt # show leslnnstat
ELANNumber(ALL) :
```

```
LNNI Statistics for ELAN 0
```

```
=====
```

```
ARP Requests Forwarded      : 0
ARP Responses Forwarded     : 0
NARP Requests Forwarded     : 0
FLUSH Requests Forwarded    : 0
FLUSH Responses Forwarded   : 0
TOPOLOGY Requests Forwarded : 0
Unicast Packets Forwarded   : 3
Multicast Packets Forwarded : 0
Broadcast Packets Forwarded : 10
```

```
Per Neighbor Statistics :
```

```
From Neighbor : 39:00:00:00:00:00:00:00:00:00:14:BF:80:00:20:D4:14:BF:80:02
```

```
ARP Requests Received       : 0
ARP Responses Received      : 0
NARP Requests Received      : 0
FLUSH Requests Received     : 0
FLUSH Responses Received    : 0
TOPOLOGY Requests Received  : 0
Unicast Packets Received    : 5
Multicast Packets Received  : 0
Broadcast Packets Received  : 12
```

```
switch_prompt # clear leslnnstat
ELANNumber(ALL) :
```

```
Clear LES/BUS LNNI statistics for all ELANs
```

```
Confirm(y/n)?:y
```

```
switch_prompt #
```

LESStat

Use LESStat to display or clear statistics of an LES for an ELAN.

Operators

show, clear

Parameters

Input Parameter	Description	Value/Field Size	Default
[ELANNumber]	Number of ELAN to which the LES belongs.	0-125 or All	All

Output Parameter	Description
[Join OK]	Successful join responses sent out by the LES.
[Join version not supported errors]	Version not supported errors for join request.
[Reg. version not supported errors]	Version not supported errors for register request.
[Unreg. version not supported errors]	Version not supported errors for unregister request.
[Join invalid request param errors]	Version not supported errors for register request.
[Reg. invalid request param errors]	Invalid request parameters errors for register request.
[Unreg. invalid request param errors]	Invalid request parameters errors for unregister request.
[Join duplicate LAN destination errors]	Duplicate LAN destination join errors.
[Reg. duplicate LAN destination errors]	Duplicate LAN destination registration.
[Join duplicate ATM destination errors]	Duplicate ATM address errors for join request.
[Reg. duplicate ATM destination errors]	Duplicate ATM address errors for register request.
[Join insufficient resource errors]	Insufficient resources to grant errors for join request.
[Reg. insufficient resource errors]	Insufficient resources to grant errors for register request.
[Join access denied errors]	Access denied errors for join request.

Output Parameter	Description
[Reg. access denied errors]	Access denied errors for register request.
[Join invalid requestid errors]	Invalid LECID errors for join request.
[Reg. invalid requestid errors]	Invalid LECID errors for register request.
[Join invalid LAN destination errors]	Invalid LAN destination errors for join request.
[Reg. invalid LAN destination errors]	Invalid LAN destination errors for register request.
[Join invalid ATM address errors]	Invalid ATM address errors for join request.
[Reg. invalid ATM address errors]	Invalid ATM address errors for register request.

Descriptions

Operator	Parameters/Permissions	Description
show lesstat	[ELANNumber] <elannumber> All	Displays statistical information about the specified ELAN on the LES.
clear lesstat	[ELANNumber] <elannumber> Administrator	Clears statistical information about the specified ELAN on the LES.

Examples

```

switch_prompt # show lesstat
ELANNumber(ALL)                                :102

    ELAN : ELAN102 Statistics
Join OK                                          : 0
Join version not supported errors              : 0
Reg. version not supported errors              : 0
UnReg. version not supported errors            : 0
Join invalid request param errors              : 0
Reg. invalid request param errors              : 0
UnReg. invalid request param errors            : 0
Join duplicate LAN destination errors           : 0
Reg. duplicate LAN destinations errors         : 0
Join duplicate ATM address errors              : 0
Reg. duplicate ATM address errors              : 0
Join insufficient resource errors              : 0
Reg. insufficient resources errors             : 0
Join access denied errors                     : 0
Reg. access denied errors                     : 0
Join invalid requestid errors                  : 0
Reg. invalid requestid errors                  : 0
Join invalid LAN destination errors            : 0
Reg. invalid LAN destination errors            : 0
Join invalid ATM address errors                : 0
Reg. invalid ATM address errors                : 0
switch_prompt #

switch_prompt # clear lesstat
ELANNumber(ALL)                                :3
Clear LES ELAN 3 Statistics
Confirm(y/n)? : y
switch_prompt #

```

LinkMonitorTimeout

Use LinkMonitorTimeout to set or show the link monitor timeout value for switch ports. The timeout value is the number of seconds a port waits without traffic before releasing all resources for connections to it.

Operators

modify, show

Parameters

Input Parameter	Description	Value/Field Size	Default
[TimeoutValue]	Number of seconds a port must be down before port resources are released.		
Output Parameter	Description		
[Link Monitor Timeout Value]	Number of seconds a port must be down before port resources are released. (Same as the [TimeoutValue] input parameter.)		

Descriptions

Operator	Parameters/Permissions	Description
modify <code>linkmonitortimeout</code>	[TimeoutValue] <timeoutvalue> Administrator	Sets link timeout value for switch ports.
show <code>linkmonitortimeout</code>	Administrator	Displays link timeout value for switch ports.

Examples

```
switch_prompt # show linkmonitortimeout
Link Monitor Timeout value is 0 seconds for all ports
```

```
switch_prompt # set linkmonitortimeout
TimeoutValue(0) : 3
Link Monitor Timeout value changed to 3
```

LNNIInfo

Use LNNIInfo to set or display LNNI parameters on the switch. LNNIInfo is one of two attributes that apply to general LNNI configuration (the other is LNNIStatus).

Operators

modify, show

Parameters

Input Parameter	Description	Value/Field Size	Default
[LECSID]	LECS identifier for the local LECS (LECS on the switch). Up to eight LECS' can act as LECS neighbors in the network. Each LECS must be assigned a unique LECSID.	-1 or 0-7 (use -1 if no LECS will be brought up on this switch)	-1

Output Parameter	Description
[LECS ID]	LECS identifier for the local LECS (LECS on the switch). Up to eight LECS' can act as LECS neighbors in the network. Each LECS must be assigned a unique LECSID.

Descriptions

Operator	Parameters/Permissions	Description
modify lnniinfo	[LECSID] <lecsid> Administrator	Sets LNNI parameters on the switch.
show lnniinfo	Administrator	Displays LNNI parameters on the switch.

Examples

```
switch_prompt # show lnniinfo  
LECS ID : 2
```

```
switch_prompt # modify lnniinfo  
LECSID(2) : 3
```

```
switch_prompt # show lnniinfo  
LECS ID : 3
```

LNNIStatus

Use LNNIStatus to enable or disable LNNI support on the switch. In addition, use LNNIStatus to selectively enable or disable use of Server Cache Synchronization Protocol (SCSP) when LNNI is enabled. LNNIStatus is one of two attributes that apply to general LNNI configuration (the other is LNNIInfo).



Note You can not disable or enable LNNI support when any server (LES, BUS, or LECS) is running on the switch.

Operators

modify, show

Parameters

Input Parameter	Description	Value/Field Size	Default
[LNNIStatus]	Enables or disables LNNI support.	Enabled, Disabled	
[SCSPStatus]	Enables or disables SCSP support. SCSP support only can be enabled if LNNI also is enabled.	Enabled, Disabled	

Output Parameter	Description
[LNNIStatus]	Indicates the status of LNNI support. Possible values are: Enabled or Disabled.
[SCSPStatus]	Indicates the status of SCSP support. Possible values are: Enabled or Disabled.

Descriptions

Operator	Parameters/Permissions	Description
modify lnnistatus	[LNNIStatus] <lnnistatus> Administrator	Toggles LNNI and SCSP support on the switch ON or OFF.
show lnnistatus	Administrator	Displays the status of LNNI and SCSP support on the switch.

Examples

```
switch_prompt # modify lnnistatus  
LNNIStatus(Disabled)           : enable  
SCSPStatus(Disabled)           :
```

```
switch_prompt # show lnnistatus  
LNNI Status                     : Enabled  
SCSP Status                     : Disabled
```

```
switch_prompt #
```

McastClients

Use McastClients to display clients associated with a multicast group.

Operators

show

Parameters

Input Parameter	Description	Value/Field Size	Default
[ELANNumber]	ELAN number associated with the multicast group.	0-125	0
[McastId]	ID of the multicast group.	2-64 or All	All

Output Parameter	Description
[LECIId]	LEC ID of the client.
[ATM Address]	ATM address of the client.
[Selective MCAST Send VPI/VCI]	Selective multicast Send VCC information.

Descriptions

Operator	Parameters/Permissions	Description
show multicastclients	[ELANNumber] <elannumber> [McastId] <mcastid> Administrator	Displays clients associated with a multicast group.

Examples

```
switch_prompt # show mcastclients 0
```

```
MCASTID: 2, GROUP MACADDR : 01:80:C2:00:00:00
```

```
-----
```

```
LECId                : 2  
ATM Address           : 39:00:00:00:00:00:00:00:00:28:E8:80:00:00:1D:6B:6E:CC:01  
Selective MCAST Send VPI/VCI : 0/108
```

```
LECId                : 3  
ATM Address           : 39:00:00:00:00:00:00:00:00:28:E8:80:00:00:1D:5E:14:D4:01  
Selective MCAST Send VPI/VCI : 0/128
```

```
switch_prompt #
```


MinMaxTableIndex

Use MinMaxTableIndex to display possible values for minimum and maximum cell threshold at switch ports. The table maps threshold values to index numbers. The index numbers are parameters of the `modify porttrafficcongestion` command. PortTrafficCongestion allows you to set values for minimum and maximum threshold (in number of cells) for a specified priority queue at a port. If the number of cells received by the switch on the specified priority queue exceeds the maximum threshold, the switch discards the cell.

Operators

show

Parameters

This attribute has no parameters. Just enter `show minmaxtableindex` at the switch prompt.

Descriptions

Operator	Parameters/Permissions	Description
<code>show minmaxtable</code>	Administrator	Displays the possible values for minimum and maximum cell threshold at switch ports.

Examples

```
switch_prompt # show minmaxtableindex
-----
MinIndex  MinValue  MaxIndex  MaxValue
-----
0          65536     0          1048576
1          32768     1          786432
2          16384     2          524288
3           8192     3          393216
4           4096     4          262144
5           2048     5          196608
6           1024     6          131072
7            512     7           98304
8            256     8           65536
9             128     9           49152
10            64     10          32768
11            32     11          16384
12            16     12           8192
13             8     13           4096
14             4     14           2048
15             0     15           1024
```

MyNMAddr

Use MyNMAddr to manage the switch through the specified IP address.

Operators

modify, show

Parameters

Parameter	Description	Value/Field Size	Default
[IPAddr]	IP address of the switch.	Dot decimal/ 15 characters	Registered IP address

Descriptions

Operator	Parameters/Permissions	Description
modify mynmaddr	[IPAddress] <ipaddress> Administrator	Sets the IP address through which the switch can be managed by the SNMP manager. The switch comes with a default MyNMAddr that matches its Ethernet address. However, MyNMAddr can be changed to an IP address that corresponds to a LANE or IP/ATM (IP over ATM) client on the switch. This allows the switch to be managed through an ATM interface.
show mynmaddr	[IPAddress] <ipaddress> Administrator	Displays the current IP address through which the switch can be managed.

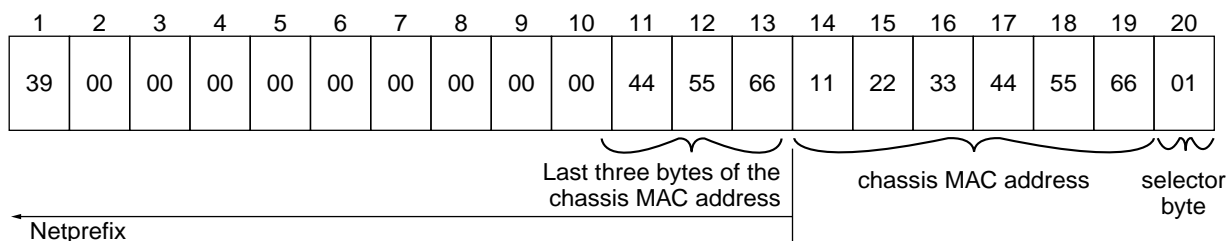
Examples

```
switch_prompt # modify mynmaddr
IpAddr()      : 204.95.75.186
My Nm IP-Address : 204.95.75.186
switch_prompt #
```

```
switch_prompt # show mynmaddr
My Nm IP-Address : 204.95.75.186
switch_prompt #
```

NetPrefix

Use NetPrefix to set or display network ATM address prefixes on a particular port. The 13-byte net prefix is based on a hierarchical addressing scheme. The default value starts with the first byte set to 39 (DCC address format), followed by nine pairs of 00s. The net prefix value typically is supplied by the network side of the UNI (user network interface). See the ATM address structure diagram following.



Note

The following applies to SmartSwitch 6500 only: You can hot-swap TSMs. Hot-swapping is replacing a module when the chassis is powered up. If you replace a TSM with another TSM of the same type (same I/O ports), existing configuration of port parameters is not affected. This includes parameters set using any of the following attributes: ATMRoute, CACServiceClassBw, IlmiConfig, NetPrefix, Port, PortConfig, PVC, PVP, ServiceRegistry, SigTimer, SigStatistics, SSCOPConfig, and SSCOPStatistics. If you replace a TSM with another TSM of a different type, existing configuration of port parameters is deleted. The deletion occurs when the new module is plugged into the chassis backplane.

Operators

add, delete, show

Parameters

Input Parameter	Description	Value/Field Size	Default
[PortNumber]	Port number on the switch. You can specify a physical or virtual port.	A1 to B4 (physical-2500 family), A1.n to B4.n (virtual-2500 family), 1A1 to 8B4 (physical-6500), 1A1.n to 8B4.n (virtual-6500), or All	All
[NetPrefix]	Net prefix within the ATM address.		No default



Note The following applies to SmartSwitch 6500 only: If you hot-swap a TSM with a TSM of a different type (different I/O ports), net prefix information associated with ports on the original TSM is deleted. Before you insert a replacement TSM, you can display existing net prefix information using the **show** operator with the **/o** option (for example: **show netprefix /o**).

Output Parameter	Description
[Port #]	Port number on the switch. (Same as the [PortNumber] input parameter.)
[NetPrefix]	Net prefix within the ATM address.

Descriptions

Operator	Parameters/Permissions	Description
add netprefix	[PortNumber] <portnumber> [NetPrefix] <netprefix> Administrator	Adds a net prefix for a particular port. Only one net prefix can be assigned per port. When a net prefix for a port is modified, all routes under the old net prefix are flushed and all SVC connections, QSAAL, and ILMI links are released. You must reboot for this command to take effect.
delete netprefix	[PortNumber] <portnumber> [NetPrefix] <netprefix> Administrator	Deletes a net prefix for a particular port.
show netprefix	[PortNumber] <portnumber> Administrator	Displays net prefixes for a specified port or for all ports.

Examples

```
switch_prompt # show netprefix
PortNumber :( ALL ):
```

Port#	NetPrefix
1A2	39:00:00:00:00:00:00:00:00:00:20:D4:14:16:00

```
switch_prompt #
```

```
switch_prompt # add netprefix
```

```
PortNumber(ALL) : 1a1
NetPrefix()      : 39:00:00:00:00:00:00:00:00:00:20:D4:14:15:00
```

```
switch_prompt #
```

```
switch_prompt # show netprefix
```

```
PortNumber :( ALL ):
```

Port#	NetPrefix
1A1	39:00:00:00:00:00:00:00:00:00:20:D4:14:15:00
1A2	39:00:00:00:00:00:00:00:00:00:20:D4:14:16:00

```
switch_prompt #
```

```
switch_prompt # delete netprefix
```

```
PortNumber(ALL) : 1a2
NetPrefix()      : 39:00:00:00:00:00:00:00:00:00:20:D4:14:16:00
```

```
switch_prompt #
```

NetworkClock

Use NetworkClock to set or display the port used as the network clock source.

Operators

modify, show

Parameters

This attribute has no output parameters.

Input Parameter	Description	Value/Field Size	Default
[PortNumber]	Physical port number on the switch.	A1 to B4 (2500 family), 1A1 to 8B4 (6500), CPU or CPU.1 (6500)	CPU

Descriptions

Operator	Parameters/Permissions	Description
modify networkclock	[PortNumber] <portnumber> Administrator	Sets the port used as the network clock source.
show networkclock	Administrator	Displays the port used as the network clock source.

Examples

```
switch_prompt # set networkclock
PortNumber(CPU)
:

switch_prompt #

switch_prompt # show networkclock

Network clock sourced on port CPU

switch_prompt #
```

Passwd

Use Passwd to change the password of the current or lower-privileged user.

Operators

passwd

Parameters

Input Parameter	Description	Value/Field Size	Default
[Old Password]	Your current password.	0-8 characters (0 is no password)	No default
[New Password]	Your new password.	0-8 characters (0 is no password)	No default

Descriptions

Operator	Parameters/Permissions	Description
passwd	[Old Password] <oldpasswd> [New Password] <newpasswd> [Reenter Password] <newpasswd> All	Changes the password of the current or lower-privileged user.

Examples

```
switch_prompt # passwd
Old Password: admin
Changing Password for User Administrator
New Password: levelone
Reenter Password: levelone
Password Changed Successfully
switch_prompt #
```

Ping

Use Ping to test IP connectivity of a client.



Note The client must be on the same subnet or it must be reachable by routing from the subnet that is pinging.

Operators

start

Parameters

Input Parameter	Description	Value/Field Size	Default
[DestIP]	IP address for ping packets.	5-8 characters	Registered IP address
[Count]	Number of times you want to send ping packets.	1-100	1

Descriptions

Operator	Parameters/Permissions	Description
start ping	[DestIP] <destinationipaddress> [Count] <numberoftries> Administrator	Starts the pinging of the external destination you are trying to reach.

Examples

```
switch_prompt # start ping
DestIP() : 204.95.77.254
Count(1) : 1
204.95.77.254 is alive
switch_prompt #
```


PnniInterface

Use PnniInterface to set or display characteristics to configure a switch port for PNNI routing.

Operators

modify, show

Parameters

Input Parameter	Description	Value/Field Size	Default
[PortNumber]	Port number on the switch. You can specify a physical or virtual port.	A1 to B4 (physical-2500 family), A1. <i>n</i> to B4. <i>n</i> (virtual-2500 family), 1A1 to 8B4 (physical-6500), 1A1. <i>n</i> to 8B4. <i>n</i> (virtual-6500), or All	All
[AdmnWtCbr]	Administrative weight for the constant bit rate (CBR) service category.	Positive integer	5040
[AdminWtRtVbr]	Administrative weight for the realtime variable bit rate (RTVBR) service category.	Positive integer	5040
[AdminWtNrtVbr]	Administrative weight for the non-realtime variable bit rate (NRTVBR) service category.	Positive integer	5040
[AdminWtAbr]	Administrative weight for the available bit rate (ABR) service category.	Positive integer	5040
[AdminWtUbr]	Administrative weight for the unspecified bit rate (UBR) service category.	Positive integer	5040
[AggregationToken]	Derived aggregation token for links associated with the port. The aggregation token used to determine which links to a given neighbor node are to be aggregated and advertised as a single logical link.	Positive integer	0
[RccServCategory]	Service category used for the PNNI routing control channel (VCI=18) on this interface.	CBR, RTVBR, NRTVBR, ABR, UBR	NRTVBR

Output Parameter	Description
[Port Number]	Port number on the switch.
[AdmnWt CBR]	Administrative weight for the constant bit rate (CBR) service category.
[AdmnWt RTVBR]	Administrative weight for the realtime variable bit rate (RTVBR) category.
[AdmnWt NRTVBR]	Administrative weight for the non-realtime variable bit rate (NRTVBR) service category.
[AdmnWt ABR]	Administrative weight for the available bit rate (ABR) service category.
[AdmnWt UBR]	Administrative weight for the unspecified bit rate (UBR) service category.
[Aggregation Token]	Derived aggregation token for links associated with the port.
If you give a specific [PortNumber], the show pnniinterface command displays the following additional fields.	
[Port Id]	Identifier of the port with respect to PNNI routing.
[VP Capability]	Whether or not VPCs can be established over links associated with the interface.
[Rcc Service Category]	Service category of routing control channel on this interface. Possible values are: CBR, RTVBR, NRTVBR, ABR, and UBR.
[Rcc Traffic Descr Index]	Traffic descriptor index of the routing control channel.

Descriptions

Operator	Parameters / Permissions	Description
modify pnniinterface	[PortNumber] <portnum> [AdminWtCbr] <adminwtcbr> [AdminWtRtVbr] <adminwtrtvbr> [AdminWtNrtVbr] <adminwtnrtvbr> [AdminWtABR] <adminwtabr> [AdminWtUBR] <adminwtubr> [AggregationToken] <aggregationtoken> [RccServCategory] <rccservcategory> Administrator	Sets parameters for PNNI routing.
show pnniinterface	Administrator	Displays parameters for PNNI routing.

Examples

```
switch_prompt # modify pnniinterface
```

```
PortNumber( ) : 1a1
AdmnWtCbr(100) :
AdmnWtRtVbr(100) :
AdmnWtNrtVbr(100) :
AdmnWtAbr(100) :
AdmnWtUbr(100) :
AggregationToken(0) :
RccServCategory(NRTVBR) :
```

```
switch_prompt #
```

```
switch_port # show pnniinterface
```

```
PortNumber(ALL) :
```

Port Number	AdmnWt CBR	AdmnWt RTVBR	AdmnWt NRTVBR	AdmnWt ABR	AdmnWt UBR	Aggregation Token
1A1	5040	5040	5040	5040	5040	0
1A2	5040	5040	5040	5040	5040	0
1A3	5040	5040	5040	5040	5040	0

```
switch_prompt #
```

```
switch_prompt # show pnniinterface
```

```
PortNumber(ALL) : 1a2
```

```
PNNI Interface Port 1A2
```

```
=====
Port Number      : 1A2
Node Index       : 1
Port Id          : 65526
Aggr Token       : 0
VP Capability     : No
Admin Weight CBR : 5040
Admin Weight RT_VBR : 5040
Admin Weight NRT_VBR : 5040
Admin Weight UBR : 5040
Admin Weight ABR : 5040
Rcc Service Category : NRTVBR
Rcc Traffic Descr Index : 0
```

```
switch_prompt #
```

PnniLink

Use PnniLink to display characteristics of all PNNI links connected directly to the switch. The characteristics include operation of each link and the relationship between each link and the nodes it connects.



Note Use PnniNetworkLink to display links not connected directly to the switch but known to the switch through the exchange of database information.

Operators

show

Parameters

Input Parameter	Description	Value/Field Size	Default
[Num]	Index number of the link as assigned by the console. Use the show pnni link all command to get a list of index numbers.	Positive integer or All	All

Output Parameter	Description
[Num]	Index of the link as assigned by the console.
[Port Number]	Physical or virtual port number on the switch.
[Node Index]	Index number of a logical node on the switch.
[Remote Node IP Addr]	IP address of remote node (node on other end of link).
[Hello State]	For horizontal and outside links between lowest-level nodes and for links of unknown type, this parameter indicates the state of the Hello protocol exchange over this link. Possible values are: Down, Attempt, 1WayInside, 2WayInside, 1WayOutside, 2WayOutside, and CommonOutside.
[Link Type]	Type of link. Possible values are: Unknown, Uplink, and Lowest Level Horizontal Link, and Horizontal Link to/from LGN.

If you give a specific [Num], the **show pnni link** command displays the following additional fields.

Output Parameter	Description
[Pnni Version]	For lowest-level horizontal and unknown link types, this attribute indicates the version of PNNI routing protocol used to exchange information. If communication with the neighbor node has not yet been established, then the PnniVersion is set to Unknown.
[Port ID]	Identifier of the port associated with the link with respect to PNNI routing.
[Remote Node Id]	Identifier of the remote node.
[Remote Port Id]	Identifier of the port associated with the link by the remote node.
[Derived Aggr. Token]	Derived aggregation token of the link.
[Upnode Id]	Identifier of the node at the other end of an uplink.
[Upnode ATM Addr]	ATM address of the upnode.
[Common Peer Group Id]	Peer group ID shared by the local node (on switch) and upnode.
[SVCC RCC Index]	Index of switched virtual channel connection of routing control channel on link.
[Rcv Hellos]	Number of Hello packets received over the link.
[Xmits Hellos]	Number of Hello packets transmitted over the link.

Description

Operator	Parameters / Permissions	Description
<code>show pnnilink</code>	[Num] <num> Administrator	Displays attributes of all PNNI links from the switch. You might have configured multiple logical nodes on the switch, each associated with a different set of links.

Examples

```
switch_prompt # show pnnilink
Num(ALL)
```

:

Num	Port Number	Node Index	Remote Node IP Addr	Hello State	Link Type
1	7A3	1	206.61.237.19	2WayInside	Lowest Level Horizontal Link
2	7B1	1	206.61.237.15	CommonOut	Outside and Uplink
3	7B2	1	206.61.237.15	CommonOut	Outside and Uplink
4	--	2	N/A	2WayInside	Horizontal Link to/from LGN

```
switch_prompt # show pnnilink
Num(ALL)
```

: 1

```
PNNI Link Num 1
```

```

=====
Node Index          : 1
Port Number         : 7A3
Port Id             : 29634560
Link Type           : Lowest Level Horizontal Link
PNNI Version        : 1.0
Hello State         : 2WayInside
Remote Node IP Addr : 206.61.237.19
Remote Node Id      : 50:a0:39:00:00:00:00:00:00:00:00:28:8d:00:00:20:d4:28:8d:7f:00
Remote Port Id      : 8192
Derived Aggr. Token : 0
Upnode Id           : NULL
Upnode ATM Addr     : NULL
Common Peer Group Id: NULL
SVCC RCC Index      : 0
Rcv Hellos          : 15953
Xmt Hellos          : 15980

```

PnniMetrics

Use PnniMetrics to manage PNNI metrics that apply to a logical node on the switch.

Operators

add, delete, show

Parameters

Input Parameter	Description	Value/Field Size	Default
[MetricsTag]	Number associated with a group of traffic parameters.	Positive integer or All	All
[TrafficDirection]	Direction in which the parameters apply.	Incoming, Outgoing	Outgoing
[ServiceCategory]	Service categories to which the parameters apply.	CBR, RTVBR, NRTVBR, ABR, UBR	UBR
[GCAC_CLP]	Whether advertised GCAC parameters apply for CLP=0 traffic or for CLP=0+1 traffic.	CLP=0 (1), CLP=0+1 (2)	2
[AdminWt]	Administrative weight for the specified service categories from the switch to the remote end of the PNNI link. The higher the value, the less desirable the path.		5040
[MaxCellRate]	Maximum cell rate (in cells per second) for the specified service category.		
[AvailableCellRate]	Available cell rate (in cells per second) for the specified service category.		
[MaximumCellTransferDelay]	Maximum cell transfer delay (in microseconds) for the specified service category.		
[CellDelayVariation]	Cell delay variation (in microseconds) for the specified service category.		
[CellLossRateForClp=0]	Cell loss ratio for CLP=0 traffic for the specified service category. The cell loss ratio is computed as $10^{(-n)}$, where n is the value of this parameter.		

Input Parameter	Description	Value/Field Size	Default
[CellLossRateForCLP=0+1]	Cell loss ratio for CLP=0+1 traffic for the specified service category. The cell loss ratio is computed as $10^{(-n)}$ where n is the value here.		
[CellRateMargin]	Cell rate margin (in cells per second) for the specified service category.		
[VarianceFactor]	Variance factor in units of $2^{(-8)}$ for the specified service category.		

Output Parameter	Description
[Metrics Tag]	Number associated with a group of traffic parameters.
[Direction]	Direction in which the parameters apply. (Same as [TrafficDirection] input parameter).
[Metrics Index]	An index into the set of parameters associated with the given tag and direction.
[GCAC CLP]	Indicates whether advertised GCAC parameters apply for CLP=0 traffic or for CLP=0+1 traffic.
[Admin Wt]	Administrative weight for the specified service categories from the switch to the remote end of the PNNI link.
[Service Categories]	Service category to which the parameters apply.

If you give a specific [MetricsTag], the **show pnnimetrics** command displays the following additional fields.

[Maximum Cell Rate]	Maximum cell rate (in cells per second) for the specified service category.
[Available Cell Rate]	Available cell rate (in cells per second) for the specified service category.
[Maximum Cell Transfer Delay]	Maximum cell transfer delay (in microseconds) for the specified service category.
[Cell Delay Variation]	Cell delay variation (in microseconds) for the specified service category.
[Cell Loss Rate CLP0]	Cell loss ratio for CLP=0 traffic for the specified service category. The cell loss ratio is computed as $10^{(-n)}$, where n is the value of this parameter.
[Cell Loss Rate CLP0+1]	Cell loss ratio for CLP=0+1 traffic for the specified service category. The cell loss ratio is computed as $10^{(-n)}$, where n is the value of this parameter.

Output Parameter	Description
[Cell Rate Margin]	Cell rate margin (in cells per second) for the specified service category.
[Variance Factor]	Variance factor in units of $2^{(-8)}$ for the specified service category.

Descriptions

Operator	Parameters / Permissions	Description
add pnnimetrics	[MetricsTag] <metricstag> [TrafficDirection] <trafficdirection> [ServiceCategory] <servicecategory> [GCAC_CLP] <gcac_clp> [AdminWt] <adminweight> [MaxCellRate] <maxcellrate> [AvailableCellRate] <availablecellrate> [MaximumCellTransferDelay] <maximumcelltransferdelay> [CellDelayVariation] <celldelayvariation> [CellLossRateCLP0] <celllossrateclp0> [CellLossRateCLP0+1] <celllossrateclp0+1> [CellRateMargin] <cellratemargin> [VarianceFactor] <variancefactor> Administrator	Creates a PNNI metric.
delete pnnimetrics	[MetricsTag] <metricstag> [TrafficDirection] <trafficdirection> [MetricsIndex] <index> Administrator	Deletes a PNNI metric.
show pnnimetrics	Administrator	Displays PNNI metrics.

Examples

```
switch_prompt # show pnnimetrics
```

```
MetricsTag(ALL) :
```

```
Metrics Tag Direction Metrics Index GCAC CLP Admin Wt Service Categories
=====
```

3	Outgoing	2	CLP0+1	5040	ABR
1118484	Outgoing	1	CLP0+1	5040	UBR
1118484	Outgoing	2	CLP0+1	5040	ABR
1118484	Outgoing	4	CLP0	5040	NRTVBR
1118484	Outgoing	24	CLP0	5040	CBR RTVBR
1118485	Outgoing	1	CLP0+1	5040	UBR
1118485	Outgoing	2	CLP0+1	5040	ABR
1118485	Outgoing	4	CLP0	5040	NRTVBR
1118485	Outgoing	24	CLP0	5040	CBR RTVBR
1118494	Outgoing	1	CLP0+1	5040	UBR
1118494	Outgoing	2	CLP0+1	5040	ABR
1118494	Outgoing	4	CLP0	5040	NRTVBR

```
switch_prompt # add pnnimetrics
```

```
MetricsTag(1) : 4
```

```
TrafficDirection(Outgoing) :
```

```
ServiceCategory(UBR) :
```

```
GCAC_CLP(2) :
```

```
AdminWt(5040) :
```

```
MaxCellRate(-1) :
```

```
AvailableCellRate(-1) :
```

```
MaximumCellTransferDelay(-1) :
```

```
CellDelayVariation(-1) :
```

```
CellLossRatioForCLP=0(-1) :
```

```
CellLossRatioForCLP=0+1(-1) :
```

```
CellRateMargin(-1) :
```

```
VarianceFactor(-1) :
```

```
switch_prompt #
```

```
switch_1 # show pnnimetrics
```

```
MetricsTag(ALL) : 3
```

```
=====
```

Metrics Tag	: 3
Direction	: Outgoing
Metrics Index	: 2
Service Categories	: ABR
GCAC CLP	: CLP0+1
Admin Wt	: 5040
Maximum Cell Rate	: 3 (cells/second)
Available Cell Rate	: 3 (cells/second)
Max Cell Transfer Delay	: Not used
Cell Delay Variation	: Not used
Cell Loss Ratio CLP0	: Not used
Cell Loss Ratio CLP0+1	: Not used
Cell Rate Margin	: Not used
Variance Factor	: Not used

```
switch_prompt #
```

```
switch_prompt # delete pnnimetrics
```

```
MetricsTag(1) : 3
```

```
TrafficDirection(Outgoing) :
```

```
MetricsIndex(1) : 2
```

```
=====
Metrics Tag           : 3
Direction             : Outgoing
Metrics Index         : 2
Service Categories    : ABR
GCAC CLP              : CLP0+1
Admin Wt              : 5040
Maximum Cell Rate     : 3 (cells/second)
Available Cell Rate   : 3 (cells/second)
Max Cell Transfer Delay : Not used
Cell Delay Variation  : Not used
Cell Loss Ratio CLP0  : Not used
Cell Loss Ratio CLP0+1 : Not used
Cell Rate Margin      : Not used
Variance Factor       : Not used
The metrics was deleted successfully.

switch_prompt #
```

PnniNeighbor

Use PnniNeighbor to display PNNI neighbors of any logical node on the switch. The PNNI neighbors are themselves logical nodes on other switches. Each PNNI neighbor is linked directly to one of the local logical nodes. (The logical nodes on the switch are viewed as local logical nodes.) PnniNeighbor displays node ID and database exchange information for the neighbor nodes.

Operators

show

Parameters

Input Parameter	Description	Value/Field Size	Default
[Num]	Index number of the neighbor as assigned by the console. Use the show pnnineighbor all command to get a list of index numbers.	Positive integer or All	All

Output Parameter	Description
[Num]	Index number of the neighbor as assigned by the console.
[Neighbor Node IP Addr.]	IP address of the neighbor node.
[Neighbor Node ID]	Identifier of the neighbor node.
[State]	PNNI database exchange state between the local and neighbor node. Possible values are: Down, Negotiation, Exchange, Loading, and Full.

If you give a specific [Num], the **show pnnineighbor** command displays the following additional fields.

[Node Index]	Index number of a logical node on the switch.
[Remote Node Id]	Same as the [Neighbor Node ID] input parameter.
[Remote Node IP Addr]	IP address of the remote node.
[Svcc Rcc Index]	Index of switched virtual channel connection of the routing control channel on the link between the local and remote (neighbor) nodes.
[Rcv DB Sums]	Number of database summary packets received from the neighbor node.
[Xmt DB Sums]	Number of database summary packets sent to the neighbor node.

Output Parameter	Description
[Rcv Ptsps]	Number of PTSPs received from the neighbor node.
[Xmt Ptsps]	Number of PTSPs (re)transmitted to the neighbor node.
[Rcv Ptse Reqs]	Number of PTSE request packets received from the neighbor node.
[Xmt Ptse Reqs]	Number of PTSE request packets transmitted to the neighbor node.
[Rcv Ptse Acks]	Number of PTSE acknowledge packets received from the neighbor node.
[Xmt Ptse Acks]	Number of PTSE Ack packets received from the neighbor node.
[Port Count]	Number of ports that connect to the neighbor node.
[Port Number]	Number identifying a port connected to the neighbor node.
[Used For Flooding]	Whether or not the port is being used for transmission of flooding and database synchronization information to the neighbor node.

Descriptions

Operator	Parameters / Permissions	Description
<code>show pnnineighbor</code>	[Num] <num> Administrator	Displays the PNNI neighbor(s) of the switch. You might have configured multiple logical nodes on the switch, each having a different set of neighbors.

Examples

```
switch_prompt # show pnnineighbor
```

```
Num(ALL) :
```

Num	Neighbor Node IP Addr.	Neighbor Node Id	State
-----	---------------------------	------------------	-------

```
=====
1 206.61.237.213 60:a0:39:00:00:00:00:00:00:00:00:14:c0:80:00:20:d4:14:c0:ff:00 F
```

```
switch_prompt # show pnnineighbor
```

```
Num(ALL) : 1
```

```
Neighbor Num 1
```

```
=====
Node Index      : 1
Remote Node Id   : 60:a0:39:00:00:00:00:00:00:00:00:14:c0:80:00:20:d4:14:c0:ff:00
Remote Node IP Addr : 206.61.237.213
State            : Full
Svcc Rcc Index   : 0
Rcv DB Sums      : 2
Xmt DB Sums      : 3
Rcv Ptsps        : 7
Xmt Ptsps        : 5
Rcv Ptse Reqs    : 1
Xmt Ptse Reqs    : 1
Rcv Ptse Acks    : 1
Xmt Ptse Acks    : 4
Port Count       : 1
```

```
More(<space>/q)?:
```

```
Ports connected the neighbor:
```

Port Number	Used for Flooding
-------------	-------------------

```
=====
1A4                Yes
```

```
switch_prompt #
```

PnniNetworkLink

Use PnniNetworkLink to display characteristics of the PNNI hierarchy as seen from a logical node on the switch. The characteristics include the operation of all links and nodes known to the logical node through the exchange of database information. The logical node on the switch is viewed as the local node.



Note Use PnniLink to display links connected directly to the switch.

Operators

show

Parameters

Input Parameter	Description	Value/Field Size	Default
[Num]	Index number of the link as assigned by the console. Use the show pnninetworklink all command to get a list of index numbers.	Positive integer or All	All

Output Parameter	Description
[Num]	Index number of the link as assigned by the console.
[Originating Node Id]	Identifier of the node whose connectivity within itself or to other nodes is displayed. This node is the origin of connectivity information that is now in the database of the local node.
[Orig Port Id]	Identifier of the port assigned to the link by the originating node.
[Remote Node Id]	Identifier of the node at the other end of the link from the originating node.
[Remote Port Id]	Identifier of the port assigned to the link by the remote node.

If you give a specific [Num], the **show pnninetworklink** command displays the following additional fields.

Output Parameter	Description
[Index]	An index into the set of link and nodal connectivity associated with the originating node and port. This index is needed since there may be multiple entries for nodal connectivity from a specific node and port pair.
[Link Type]	The type of PNNI entity associated with this link. Possible values are: Horizontal Link to/from LGN, Lowest Level Horizontal Link, Uplink, and Unknown.
[Peer Group Id]	Peer group of the originating node.
[Aggr Token]	Derived aggregation token value for this link.
[Vp Capability]	Whether or not VPCs can be established across the PNNI entity associated with this link.
[Ptse Id]	Identifier of the PTSE from the originating node. The PTSE contained information groups(s) that are now part of the database for the local node.
[Metrics Tag]	Integer that associates a set of traffic parameters with this link.

Descriptions

Operator	Parameters / Permissions	Description
show pnninetworklink	[Num] <num> Administrator	Displays information on the link(s) within the PNNI hierarchy as seen from the local logical node.

Examples

```
switch_prompt # show pnninetworklink
```

```
Num(ALL) :
```

Num	Originating Node Id	Orig Port Id	Remote Node Id	Remote Port Id
1	48:50:39:00:00:00:00:00:00:00:00:00:00:00:00:00:20:d4:14:41:ff:00	2147483649	48:50:39:00:00:00:00:00:00:00:00:00:00:00:00:00:01:00:20:d4:29:05:7f:00	2147483648
2	48:50:39:00:00:00:00:00:00:00:00:00:00:00:00:00:01:00:20:d4:29:05:7f:00	2147483648	48:50:39:00:00:00:00:00:00:00:00:00:00:00:00:00:20:d4:14:41:ff:00	2147483649
3	50:a0:39:00:00:00:00:00:00:00:00:00:00:00:00:00:14:41:80:00:20:d4:14:41:ff:00	4096	50:a0:39:00:00:00:00:00:00:00:00:00:00:00:00:00:14:59:00:00:20:d4:14:59:7f:00	45056
4	50:a0:39:00:00:00:00:00:00:00:00:00:00:00:00:00:14:59:00:00:20:d4:14:59:7f:00	16384	50:a0:39:00:00:00:00:00:00:00:00:00:00:00:00:00:28:c1:80:00:20:d4:28:c1:ff:00	57344
5	50:a0:39:00:00:00:00:00:00:00:00:00:00:00:00:00:14:59:00:00:20:d4:14:59:7f:00	45056	50:a0:39:00:00:00:00:00:00:00:00:00:00:00:00:00:14:41:80:00:20:d4:14:41:ff:00	4096

```
switch_prompt #
```

```
switch_prompt # show pnninetworklink
```

```
Num(ALL) : 4
```

```
PNNI Link Num 4
```

```
=====
Node Index      : 1
Orig Node Id    : 50:a0:39:00:00:00:00:00:00:00:00:00:00:00:00:00:14:59:00:00:20:d4:14:59:7f:00
0
Orig Port Id    : 16384
Index           : 1
Link Type       : Horizontal Link
Peer Group Id   : 50:39:00:00:00:00:00:00:00:00:00:00:00:00:00:00
Aggr Token      : 0
Remote Node Id  : 50:a0:39:00:00:00:00:00:00:00:00:00:00:00:00:00:28:c1:80:00:20:d4:28:c1:ff:00
0
Remote Port Id  : 57344
Vp Capability   : False
Ptse Id         : 9
Metrics Tag     : 1118495
```

```
switch_prompt #
```

PnniNetworkNode

Use PnniNetworkNode to display all nodes within the PNNI hierarchy as seen from a logical node on the switch. The logical node on the switch is viewed as the local node. The other nodes are viewed as remote nodes.

Operators

show

Parameters

Input Parameter	Description	Value/Field Size	Default
[Num]	Index number of the remote node as assigned by the console. Use the show pnninetworknode all command to get a list of index numbers.	Positive integer or All	All
Output Parameter	Description		
[Node Id]	Identifier of the remote node.		

If you give a specific [Num], the **show pnninetworknode** command displays the following additional fields.

[Node Index]	An index into the set of nodal information associated with the remote node. This index is needed since there may be multiple entries for nodal information from a specific node.
[Peer Group Id]	Identifier of the peer group of the remote node.
[Node ATM Address]	ATM end system address of the remote node.
[Rest. Transit]	Whether or not the remote node is restricted to only allow support of SVCs originating or terminating at its location. Possible values are: True and False. True indicates that the transit capabilities are restricted; that is, transit connections are not allowed. False indicates that transit connections are allowed. This parameter reflects the setting of the restricted transit bit received in the nodal information PTSE of the originating node.
[Complex Rep.]	Whether or not the remote node uses the complex node representation. Possible values are: True and False. True indicates the spokes and bypasses that make up the complex node representation should be found in the pnniMapTable. This parameter reflects the setting of the nodal representation bit received in the nodal information PTSE of the remote node.

Output Parameter	Description
[Rest. Branching]	Whether the remote node is able to support additional branches. Possible values are: True and False. False indicates it can support additional branches. This parameter reflects the setting of the restricted branching bit received in the nodal information PTSE of the remote node.
[DB Overload]	Whether the remote node is currently operating in topology database overload state. Possible values are: True and False. This parameter has the same value as the Non-transit for PGL Election bit in the nodal information group originated by this node.
[Leader]	Whether the remote node claims to be Peer Group Leader of its peer group. Possible values are: True and False. This parameter reflects the setting of the I Am Leader bit received in the nodal information PTSE of the remote node.
[Leader Priority]	Leadership priority value advertised by the remote node.
[Preferred PGL]	When the remote node is a Peer Group Leader, this indicates the node ID of the parent LGN. If the remote node is not leader of its peer group, this parameter is set to NULL.
[Parent Node Id]	When the remote node is a Peer Group Leader, this indicates the node ID of the parent LGN. If the remote node is not leader of its peer group, this parameter is set to NULL.
[Parent ATM Addr]	When the remote node is a Peer Group Leader, this indicates the ATM address of the parent LGN. If the remote node is not leader of its peer group, this parameter is set to NULL.
[Parent PG Id]	When the remote node is a Peer Group Leader, this indicates the node's parent peer group ID. If the remote node is not leader of its peer group, this parameter is set to NULL.
[Parent PGL Id]	When the remote node is a Peer Group Leader, this indicates the Peer Group Leader of the parent peer group of the node. If the remote node is not leader of its peer group, this parameter is set to NULL.

Descriptions

Operator	Parameters / Permissions	Description
<code>show</code> <code>pnninetworknode</code>	[Num] <num> Administrator	Displays nodes within the PNNI hierarchy.

Examples

```
switch_prompt # show pnninetworknode
```

```
Num(ALL) :
```

```
Num      Node Id
=====
1      48:50:39:00:00:00:00:00:00:00:00:00:00:00:00:00:20:d4:14:41:ff:00
2      48:50:39:00:00:00:00:00:00:00:00:00:00:00:01:00:20:d4:29:05:7f:00
3      50:a0:39:00:00:00:00:00:00:00:00:00:00:00:14:41:80:00:20:d4:14:41:ff:00
4      50:a0:39:00:00:00:00:00:00:00:00:00:00:14:59:00:00:20:d4:14:59:7f:00
5      50:a0:39:00:00:00:00:00:00:00:00:00:00:28:c1:80:00:20:d4:28:c1:ff:00
6      50:a0:39:00:00:00:00:00:00:00:00:00:00:28:e6:00:00:20:d4:28:e6:7f:00
```

```
switch_prompt #
```

```
switch_prompt # show pnninetworknode
```

```
Num(ALL) : 4
```

```
Node Num 4
```

```
=====
Node Index      : 1
Node Id         : 50:a0:39:00:00:00:00:00:00:00:00:00:14:59:00:00:20:d4:14:59:7f:00
Peer Group Id   : 50:39:00:00:00:00:00:00:00:00:00:00:00:00:00
Node ATM Addr   : 39:00:00:00:00:00:00:00:00:00:14:59:00:00:20:d4:14:59:7f:00
Rest. Transit   : False
Complex Rep.    : False
Rest. Branching : False
DB Overload     : False
Leader          : False
Leader Priority  : 0
Preferred PGL   : 50:a0:39:00:00:00:00:00:00:00:00:14:41:80:00:20:d4:14:41:ff:00
Parent Node Id  : Null
Parent ATM Addr : Null
Parent PG Id    : Null
Parent PGL Id   : Null
```

```
switch_prompt #
```

PnniNode

Use PnniNode to set or display logical nodes on the switch. If the switch is represented on multiple levels of the PNNI hierarchy, it has a separate logical node (and node ID) for each representation.

Operators

add, delete, modify, show

Parameters

Input Parameter	Description	Value/Field Size	Default
[NodeIndex]	Identifier for a logical node on the switch.	Positive integer	1
[NodeLevel]	A bit-string length that indicates PNNI routing level. The higher the number, the lower the PNNI level.	0 - 104	80
[ComplexRepresentation]	Specifies whether or not this node uses complex node representation.	Yes, No	No
[NodeAtmAddress]	ATM address of the switch.		No default

Output Parameter	Description
[Node Index]	Identifier of a logical node on the switch.
[Node Level]	A bit-string length that indicates PNNI routing level.
[Node Id]	Logical node ID.
[Lowest]	Whether or not the switch acts as a lowest-level node or whether it is a logical node that becomes active when one of the other nodes in the switching system becomes a Peer Group Leader. Possible values are: True and False.
[Admin Status]	Indicates administrative status of the switch. Possible values are: Up and Down.
[Oper Status]	Indicates operational status of the switch. Possible values are: Up and Down.
[Node ATM Address]	ATM address of the switch.
[Peer Group Id]	Identifier of the peer group of which the switch is a part.

Output Parameter	Description
[Rst Transit]	Whether or not the switch is restricted to not allowing support of SVCs transiting it. Possible values are: True and False.
[Complex Rep.]	Whether or not the switch uses the complex node representation. Possible values are: True and False. True indicates complex node representation is used. False indicates simple node representation is used.
[Rst Branching]	Whether or not the switch is able to support additional point-to-multipoint branches. Possible values are: True and False. False indicates additional branches can be supported. True indicates additional branches cannot be supported.
[DB Overload]	Whether or not the switch is currently operating in topology database overload state. Possible values are: True or False.
[Ptse]	Number of PTSEs currently in the topology database of the switch.

Descriptions

Operator	Parameters / Permissions	Description
add pnninode	[NodeIndex] <nodeindex> [NodeLevel] <nodelevel> [ComplexRepresentation] <complexrepresentation> Administrator	Adds a logical node at the switch.
delete pnninode	[NodeIndex] <nodeindex> Administrator	Deletes a logical node at the switch.
modify pnninode	[NodeIndex] <nodeindex> [NodeLevel] <nodelevel> [AtmAtmAddress] <atmaddress> Administrator	Changes a logical node at the switch.
show pnninode	Administrator	Displays PNNI node information for the switch.

Examples

```

switch_prompt # add pnninode
NodeIndex(2)                                     :
NodeLevel(72)                                   :
ComplexRepresentation(N)                       :

switch_prompt #

switch_prompt # delete pnninode
NodeIndex(1)                                     : 2

PNNI Node Information
=====
Node Index   : 2
Level        : 72
Node Id      : 48:50:39:00:00:00:00:00:00:00:00:00:00:00:20:d4:28:de:ff:00
Lowest       : FALSE
Admin Status : UP
Oper Status  : UP
ATM Address  : 39:00:00:00:00:00:00:00:00:00:28:de:80:00:20:d4:28:de:ff:01
Peer Group Id: 48:39:00:00:00:00:00:00:00:00:00:00:00:00:00:00
Rst Transit  : FALSE
Complex Rep  : FALSE
Rst Branching: FALSE
DB Overload  : FALSE
Ptse         : 2

Are you sure you want to delete the node (yes/No)? : y
The node has been deleted successfully.

switch_prompt #

switch_prompt # modify pnninode
NodeIndex(1)                                     :
Level(80)                                         :
AtmAddress(39:00:00:00:00:00:00:00:01:28:DE:80:00:20:D4:28:DE:FF:00):

switch_prompt # show pnninode
NodeIndex(1)                                     :
=====
Node Index   : 1
Level        : 80
Node Id      : 50:a0:39:00:00:00:00:00:00:00:01:28:de:80:00:20:d4:28:de:ff:00
Lowest       : TRUE
Admin Status : UP
Oper Status  : UP
ATM Address  : 39:00:00:00:00:00:00:00:01:28:de:80:00:20:d4:28:de:ff:00
Peer Group Id: 50:39:00:00:00:00:00:00:00:00:01:00:00:00
Rst Transit  : FALSE
Complex Rep  : FALSE
Rst Branching: FALSE
DB Overload  : FALSE
Ptse         : 23

switch_prompt #

```

PnniNodeTimer

Use PnniNodeTimer to set or display PNNI protocol timer values.

Operators

modify, show

Parameters

Input Parameter	Description	Value/Field Size	Default
[NodeIndex]	Identifier for a logical node on the switch.	Positive integer	1
[PtseHolddown]	Initial value for the PTSE holddown timer to limit the rate at which the switch can re-originate PTSEs.	Positive integer in units of 100 microseconds	10
[HelloHolddown]	Initial value for the Hello holddown timer that limits the rate at which the switch sends Hellos.	Positive integer in units of 100 microseconds	10
[HelloInterval]	Interval at which the switch sends one Hello packet in absence of triggered Hellos.	Positive integer in units of seconds	15
[HelloInactivityFactor]	Number of Hello intervals allowed to pass without receiving a Hello before the Hello FSM declares the link down.	Positive integer	5
[HLinkInactivityTime]	Time a switch continues to advertise a horizontal (logical) link for which it has not received and processed a LGN horizontal link information group.	Positive integer in units of seconds	120
[PTSERefreshInterval]	Interval at which the switch drives origination PTSEs in the absence of triggered updates.	Positive integer in units of seconds	1800
[PTSELifetimeFactor]	A value (expressed as a percentage) used to calculate the initial time of self-originated PTSEs. The result of multiplying the PTSERefreshInterval by this value is the initial lifetime the switch places into self-originated PTSEs.	Positive integer from 101-1000	200

Input Parameter	Description	Value/Field Size	Default
[RxmtInterval]	Interval between retransmissions of unacknowledged database summary packets, PTSE request packets, and PTSPs.	Positive integer in units of seconds.	5
[PeerDelayedAckInterval]	Interval between transmissions of delayed PTSE acknowledgment packets.	Positive integer in units of 100 microseconds.	10

Output Parameter	Description
[Node Index]	Identifier for a logical node on the switch.
[Ptse Holddown]	Initial value for the PTSE holddown timer to limit the rate at which the switch can re-originate PTSEs.
[Hello Holddown]	Initial value for the Hello holddown timer that limits the rate at which the switch sends Hellos.
[Hello Interval]	Interval at which the switch sends one Hello packet in absence of triggered Hellos.
[Hello Inactivity Factor]	Number of Hello intervals allowed to pass without receiving a Hello before the Hello FSM declares the link down.
[Horizontal Link Inactivity Time]	Time a switch continues to advertise a horizontal (logical) link for which it has not received and processed a LGN horizontal link information group.
[Ptse Refresh Interval]	Interval at which the switch drives origination PTSEs in the absence of triggered updates.
[Ptse Lifetime Factor]	A value (expressed as a percentage) used to calculate the initial time of self-originated PTSEs. The result of multiplying the PTSERefreshInterval by this value is the initial lifetime the switch places into self-originated PTSEs.
[Rxmt Interval]	Interval between retransmissions of unacknowledged database summary packets, PTSE request packets, and PTSPs.
[Peer Delayed Ack Interval]	Interval between transmissions of delayed PTSE acknowledgment packets.
[AvCR PM]	Proportional multiplier used in the algorithms that determine significant change for AvCR parameters, expressed as a percentage.
[AvCR MT]	Minimum threshold used in the algorithms that determine significant change for AvCR parameters, expressed as a percentage.

Output Parameter	Description
[CVD PM]	Proportional multiplier used in algorithms that determine significant change for CDV metrics, expressed as a percentage.
[CTD PM]	Proportional multiplier used in the algorithms that determine significant change for CTC metrics, expressed as a percentage.

Descriptions

Operator	Parameters / Permissions	Description
modify pnninodetimer	[PtseHolddown] <ptseholddown> [HelloHolddown] <helloholddown> [HelloInterval] <hellointerval> [HelloInactivityFactor] <helloinactivityfactor> [HorizontalLinkInactivityTimer] <horizontallinkinactivitytimer> [PTSERefreshInterval] <ptsereshinterval> [PTSELifetimeFactor] <ptselifetimefactor> [RxmInterval] <rxminterval> [PeerDelayedAckInterval] <peerdelayedackinterval> Administrator	Sets PNNI protocol timer values.
show pnninodetimer	Administrator	Displays PNNI protocol timer values.

Examples

```

switch_prompt # set pnninodetimer
NodeIndex(1)           : 1
PtseHolddown(10)       : 20
HelloHolddown(10)      : 20
HelloInterval(15)      :
HelloInactivityFactor(5) :
HorizontalLinkInactivityTime(120) :
PtseRefreshInterval(1800) :
PtseLifeTimeFactor(200) :
RxmtInterval(5)        :
PeerDelayedAckInterval(10) :

switch_prompt #

switch_prompt # show pnninodetimer

PNNI Node Timer
=====
Node Index           : 1
Ptse Holddown        : 20 (units of 100 millisecs)
Hello Holddown       : 20 (units of 100 millisecs)
Hello Interval       : 15 secs
Hello Inactivity Factor : 5
Horizontal Link Inactivity Time : 120 secs
Ptse Refresh Interval : 1800 secs
Ptse Lifetime Factor  : 200
Rxmt Interval        : 5 secs
Peer Delayed Ack Interval : 10 (units of 100 millisecs)
AvCR PM              : 32
AvCR MT              : 3
CDV PM               : 19
CTD PM               : 32

switch_prompt #

```

PnniPeerGroupId

Use PnniPeerGroupId to set the peer group ID of a logical node on the switch.

Operators

modify

Parameters

This attribute has no output parameters.

Input Parameter	Description	Value/Field Size	Default
[NodeIndex]	Identifier for a logical node on the switch.	Positive integer	1
[PeerGroupId]	The ID of the peer group of which this node is to become a member.		No default

Descriptions

Operator	Parameters/Permissions	Description
modify pnnipeergroupid	[NodeIndex] <nodeindex> Administrator	Sets the peer group ID of a logical node on the switch.

Examples

```
switch_prompt # set pnnipeergroupid
NodeIndex(1) :
PeerGroupId(50:39:00:00:00:00:00:00:00:00:00:00):
switch_prompt #
```

PnniPglElection

Use PnniPglElection to set or display PNNI peer group election characteristics for the switch. The characteristics are with respect to a specific logical node on the switch (identified by the NodeIndex input parameter).

Operators

modify, show

Parameters

Input Parameter	Description	Value/Field Size	Default
[NodeIndex]	Identifier of a logical node on the switch.	Positive integer	1
[LeadershipPriority]	Leadership priority value of the logical node. The switch advertises this value to the peer group of that logical node.	Positive integer	1
[ParentNodeIndex]	Index of parent node of logical node. This applies only if the logical node has a parent at a higher level in the PNNI hierarchy.	Positive integer	2
[InitTime]	Time in seconds the switch delays advertising its choice of preferred Peer Group Leader (PGL). The timer begins after the switch has initialized operation and reached the Full state with at least one neighbor in the peer group.	Positive integer	15
[OverrideDelay]	Time in seconds the switch waits for itself to be declared the preferred PGL by unanimous agreement among its peers. In the absence of unanimous agreement, this is the time that passes before the switch considers a two thirds majority as sufficient agreement to declare itself PGL, abandoning the attempt to get unanimous agreement.	Positive integer	30
[ReElectionTime]	Time in seconds after losing connectivity to the current PGL that the switch waits before re-starting the process of electing a new PGL.	Positive integer	15

Output Parameter	Description
[NodeIndex]	Identifier of a logical node on the switch.
[LeadershipPriority]	Leadership priority value of the logical node. The switch advertises this value to the peer group of that logical node.
[ParentNodeIndex]	Index of parent node of logical node. This applies only if the logical node has a parent at a higher level in the PNNI hierarchy.
[InitTime]	Time in seconds the switch delays advertising its choice of preferred Peer Group Leader (PGL). The timer begins after the switch has initialized operation and reached the Full state with at least one neighbor in the peer group.
[OverrideDelay]	Time in seconds the switch waits for itself to be declared the preferred PGL by unanimous agreement among its peers. In the absence of unanimous agreement, this is the time that passes before the switch considers a two thirds majority as sufficient agreement to declare itself PGL, abandoning the attempt to get unanimous agreement.
[ReElectionTime]	Time in seconds after losing connectivity to the current PGL that the switch waits before re-starting the process of electing a new PGL.
[Time Stamp]	Time at which the current PGL established itself.
[Election State]	Indicates the state that the switch is in with respect to the PGL election that takes place in the peer group. Possible values are: Starting, Awaiting, Awaiting Full, Initial Delay, Calculating, Await Unanimity, Operating as PGL, Operating not as PGL, Hung Election, and Waiting Reelection.
[Preferred PGL]	Indicates the preferred PGL of the peer group.
[Peer Group Leader]	Identifier of the node that is currently PGL. If a PGL has not been elected, this parameter is set to (all) zero(s).
[Active Parent Node Id]	Node identifier used by the PGL to represent this peer group at the next level of the hierarchy. If this node is at the highest level of the hierarchy or if no PGL has been elected yet, the PNNI Protocol Entity sets the value of this parameter to NULL.

Descriptions

Operator	Parameters / Permissions	Description
modify pnnipglelection	[NodeIndex] <nodeindex> [LeadershipPriority] <leadershippriority> [ParentNodeIndex] <parentnodeindex> [InitTime] <inittime> [OverrideDelay] <override delay> [ReElectionTime] <reelectiontime> Administrator	Sets PNNI election parameters for the switch.
show pnnipglelection	[NodeIndex] <nodeindex> Administrator	Displays PNNI election parameters for the switch.

Examples

```
switch_prompt # modify pnnipglelection
```

```
NodeIndex(1)                :
LeadershipPriority(52)       :
ParentNodeIndex(2)          :
InitTime(15)                 : 20
OverrideDelay(30)           : 35
ReElectTime(15)              : 20
```

```
switch_prompt #
```

```
switch_prompt # show pnnipglelection
```

```
NodeIndex(1)                :
```

```
PGL Election Information
```

```
=====
```

```
Node Index      : 1
Leadership Priority : 1
Parent Node Index : 2
Init Time       : 15 secs
Override Delay  : 30 secs
Reelect Time    : 15 secs
Time Stamp      : 12411
Election State   : Operating as PGL
Preferred PGL    : 50:a0:39:00:00:00:00:00:00:00:00:28:de:80:00:20:d4:28:de:ff:00
Peer Group Leader : 50:a0:39:00:00:00:00:00:00:00:00:28:de:80:00:20:d4:28:de:ff:00
Active Parent Node Id : 48:50:39:00:00:00:00:00:00:00:00:00:00:00:00:20:d4:28:de:ff:00
```

```
switch_prompt #
```

PnniPtse

Use PnniPtse to display PTSEs stored in the topology database of the switch.

Operators

show

Parameters

Input Parameter	Description	Value/Field Size	Default
[Num]	Index number assigned by the console that indicates which node originating the PTSE is displayed. Use the show pnniptse all command to get a list of index numbers.	Positive integer or All	All

Output Parameter	Description
[Num]	Index number assigned by the console that indicates which node originating the PTSE is displayed.
[Originating Node Id]	Identifier of the node that originated the PTSE(s).
[Ptse Count]	Number of PTSEs from the originating node in the topological database of the switch.

If you give a specific [Num], the **show pnniptse** command displays the following additional fields.

[Type]	Type of information contained in the PTSE. Possible values are: Nodal State Parameters, Nodal Information, Internal Addresses, Exterior Addresses, Horizontal Links, and Uplinks.
[Ptse Id]	PTSE identifier assigned to the PTSE by its originator.
[Seq Num]	Sequence number of the instance of the PTSE as it appears in the local topology database.
[Checksum]	The value of the PTSE checksum as it appears in the local topology database.
[Lifetime]	The value of the remaining lifetime for the given PTSE as it appears in the local topology database (expressed in seconds).

Descriptions

Operator	Parameters / Permissions	Description
<code>show pnniptse</code>	[Num] <num> Administrator	Displays PTSEs in topology database of switch.

Examples

```
switch_prompt # show pnniptse
Num(ALL)
```

:

No.	Originating Node Id	Ptse Count
1	50:a0:39:00:00:00:00:00:00:00:00:00:00:14:4a:00:00:20:d4:14:4a:00:00	3
2	50:a0:39:00:00:00:00:00:00:00:00:00:00:14:bf:80:00:20:d4:14:bf:80:00	2
3	50:a0:39:00:00:00:00:00:00:00:00:00:00:14:c0:80:00:20:d4:14:c0:80:00	2

```
switch_prompt #
```

```
switch_prompt # show pnniptse 1
```

```
PTSE from Node #1
```

```
Node Id : 50:a0:39:00:00:00:00:00:00:00:00:00:00:14:4a:00:00:20:d4:14:4a:00:00
```

Type	Description	PTSE Id	Seq No.	Checksum	Lifetime
97	Nodal information	1	5	22746	0 secs
288	Horizontal links	2	4	23862	99 secs
256	Exterior address	4	4	50355	337 secs

```
switch_prompt #
```

PnniReachableAddress

Use PnniReachableAddress to display a list of reachable addresses from the switch. The addresses are advertised by remote logical nodes that are visible to the switch (logical nodes from which the switch receives database information).

Operators

show

Parameters

Input Parameter	Description	Value/Field Size	Default
[Num]	Index number of the reachable address as assigned by the console. Use show pnnireachableaddress ALL to get a list of index numbers.	Positive integer or All	All

Output Parameter	Description
[Num]	Index number of the reachable address as assigned by the console.
[Reachable Address]	Reachable address from a logical node on the switch.
[Advertising Node Id]	Node ID of the remote node advertising the reachable address.

If you give a specific [Num], the **show pnnireachableaddress** command displays the following additional fields.

[Node Index]	Identifier of a logical node on the switch (local node that is linked to the remote advertising node).
[Adver. Port Id]	Identifier of the port at the advertising node that leads to the reachable address.
[Address Index]	Secondary index assigned by the console to distinguish between multiple reachable addresses advertised by the same remote node.
[ATM Address]	Reachable address from a logical node on the switch.
[Prefix Length]	Prefix length of the given reachable address.

Descriptions

Operator	Parameters / Permissions	Description
show pnnireachableaddress	[Num] <num> Administrator	Displays information on all reachable addresses from each node visible to the switch.

Examples

```
switch_prompt # show pnnireachableaddress
Num(ALL) :
```

```

Num      Reachable Address
         Advertising Node Id
=====
1        39:00:00:00:00:00:00:00:00:00:14:41:80:00:00:00:00:00:00
         48:50:39:00:00:00:00:00:00:00:00:00:00:00:00:20:d4:14:41:ff:00

2        47:00:79:00:00:00:00:00:00:00:00:00:00:00:00:a0:3e:00:00:01
         48:50:39:00:00:00:00:00:00:00:00:00:00:00:00:00:00:20:d4:14:41:ff:00

3        39:00:00:00:00:00:00:00:00:00:00:00:28:e6:00:00:00:00:00:00:00
         48:50:39:00:00:00:00:00:00:00:00:00:00:00:00:00:00:20:d4:14:41:ff:00

4        39:00:00:00:00:00:00:00:00:00:00:00:28:c1:80:00:00:00:00:00:00
         48:50:39:00:00:00:00:00:00:00:00:00:00:00:00:00:00:20:d4:14:41:ff:00

5        39:00:00:00:00:00:00:00:00:00:00:00:14:59:00:00:00:00:00:00:00
         48:50:39:00:00:00:00:00:00:00:00:00:00:00:00:00:00:20:d4:14:41:ff:00
```

```
switch_prompt # show pnnireachableaddress
Num(ALL) : 3
```

```

Reachable Address Num 3
=====
Node Index      : 1
Adver. Node Id: 48:50:39:00:00:00:00:00:00:00:00:00:00:00:00:00:00:20:d4:14:41:ff:00
0
Adver. Port Id: 0
Address Index : 6
ATM Address   : 39:00:00:00:00:00:00:00:00:00:00:28:e6:00:00:00:00:00:00:00:00
Prefix Length : 104
```

```
switch_prompt #
```

PnniScopeMapping

Use PnniScopeMapping to set or display the mappings of membership and connection scope from UNI to PNNI terms. The mappings are from the perspective of a logical node on the switch.

Operators

modify, show

Parameters

Input Parameter	Description	Value/Field Size	Default
[NodeIndex]	Identifier for a logical node on the switch.	Positive integer	1
[LocalNetwork]	Highest level of PNNI hierarchy (smallest PNNI routing level) that lies within the UNI scope value localNetwork(1).	0-104	96
[LocalNetworkPlusOne]	Highest level of PNNI hierarchy (smallest PNNI routing level) that lies within the UNI scope value localNetworkPlusOne(2).	0-104	96
[LocalNetworkPlusTwo]	Highest level of PNNI hierarchy (smallest PNNI routing level) that lies within the UNI scope value localNetworkPlusTwo(3).	0-104	96
[SiteMinusOne]	Highest level of PNNI hierarchy (smallest PNNI routing level) that lies within the UNI scope value siteMinusOne(4).	0-104	80
[IntraSite]	Highest level of PNNI hierarchy (smallest PNNI routing level) that lies within the UNI scope value intraSite(5).	0-104	80
[SitePlusOne]	Highest level of PNNI hierarchy (smallest PNNI routing level) that lies within the UNI scope value sitePlusOne(6).	0-104	72
[OrganizationMinusOne]	Highest level of PNNI hierarchy (smallest PNNI routing level) that lies within the UNI scope value organizationMinusOne(7).	0-104	72
[IntraOrganization]	Highest level of PNNI hierarchy (smallest PNNI routing level) that lies within the UNI scope value intraOrganization(8).	0-104	64

Input Parameter	Description	Value/Field Size	Default
[OrganizationPlusOne]	Highest level of PNNI hierarchy (smallest PNNI routing level) that lies within the UNI scope value organizationPlusOne(9).	0-104	64
[CommunityMinusOne]	Highest level of PNNI hierarchy (smallest PNNI routing level) that lies within the UNI scope value communityMinusOne(10).	0-104	64
[IntraCommunity]	Highest level of PNNI hierarchy (smallest PNNI routing level) that lies within the UNI scope value intraCommunity(11).	0-104	48
[CommunityPlusOne]	Highest level of PNNI hierarchy (smallest PNNI routing level) that lies within the organizational scope value communityPlusOne(12).	0-104	48
[Regional]	Highest level of PNNI hierarchy (smallest PNNI routing level) that lies within the UNI scope value regional(13).	0-104	32
[InterRegional]	Highest level of PNNI hierarchy (smallest PNNI routing level) that lies within the UNI scope value interRegional(14).	0-104	32
[Global]	Highest level of PNNI hierarchy (smallest PNNI routing level) that lies within the UNI scope value global(15).	0-104	0

Output Parameter	Description
[Node Index]	Identifier for a logical node on the switch.
[Local Network]	Highest level of PNNI hierarchy (smallest PNNI routing level) that lies within the UNI scope value localNetwork(1).
[Local Network Plus One]	Highest level of PNNI hierarchy (smallest PNNI routing level) that lies within the UNI scope value localNetworkPlusOne(2).
[Local Network Plus Two]	Highest level of PNNI hierarchy (smallest PNNI routing level) that lies within the UNI scope value localNetworkPlusTwo(3).
[SiteMinusOne]	Highest level of PNNI hierarchy (smallest PNNI routing level) that lies within the UNI scope value siteMinusOne(4).

Output Parameter	Description
[Intra Site]	Highest level of PNNI hierarchy (smallest PNNI routing level) that lies within the UNI scope value intraSite(5).
[Site Plus One]	Highest level of PNNI hierarchy (smallest PNNI routing level) that lies within the UNI scope value sitePlusOne(6).
[Organization Minus One]	Highest level of PNNI hierarchy (smallest PNNI routing level) that lies within the UNI scope value organizationMinusOne(7).
[Intra Organization]	Highest level of PNNI hierarchy (smallest PNNI routing level) that lies within the UNI scope value intraOrganization(8).
[Organization Plus One]	Highest level of PNNI hierarchy (smallest PNNI routing level) that lies within the UNI scope value organizationPlusOne(9).
[Community Minus One]	Highest level of PNNI hierarchy (smallest PNNI routing level) that lies within the UNI scope value communityMinusOne(10).
[Intra Community]	Highest level of PNNI hierarchy (smallest PNNI routing level) that lies within the UNI scope value intraCommunity(11).
[Community Plus One]	Highest level of PNNI hierarchy (smallest PNNI routing level) that lies within the organizational scope value communityPlusOne(12).
[Regional]	Highest level of PNNI hierarchy (smallest PNNI routing level) that lies within the UNI scope value regional(13).
[Inter Regional]	Highest level of PNNI hierarchy (smallest PNNI routing level) that lies within the UNI scope value interRegional(14).
[Global]	Highest level of PNNI hierarchy (smallest PNNI routing level) that lies within the UNI scope value global(15).

Descriptions

Operator	Parameters / Permissions	Description
modify pnniscopemapping	[NodeIndex] <nodeindex> [LocalNetwork] <localnetwork> [LocalNetworkPlusOne] <localnetworkplusone> [LocalNetworkPlusTwo] <localnetworkplustwo> [SiteMinusOne] <siteminusone> [IntraSite] <intrasite> [SitePlusOne] <siteplusone> [OrganizationMinusOne] <organizationminusone> [IntraOrganization] <intraorganization> [OrganizationPlusOne] <organizationplusone> [CommunityMinusOne] <communityminusone> [IntraCommunity] <intracommunity> [CommunityPlusOne] <communityplusone> [Regional] <regional> [Global] <global> Administrator	Sets mappings of membership and organizational scope between UNI and PNNI.
show pnniscopemapping	Administrator	Displays mappings of membership and organizational scope between UNI and PNNI.

Examples

```
switch_prompt # modify pnniscopemapping
NodeIndex(1)                                     :
LocalNetwork(96)                                 :
LocalNetworkPlusOne(96)                         :
LocalNetworkPlusTwo(96)                        :
SiteMinusOne(80)                                :
IntraSite(80)                                   :
SitePlusOne(72)                                 :
OrganizationMinusOne(72)                       :
IntraOrganization(64)                         :
OrganizationPlusOne(64)                       :
CommunityMinusOne(64)                         :
IntraCommunity(48)                            :
CommunityPlusOne(48)                          :
Regional(32)                                   :
InterRegional(32)                             :
Global(0)                                       :
```

```
switch_prompt #
```

```
switch_prompt # show pnniscopemapping
NodeIndex(1)                                     :
```

```
PNNI Scope Mapping
```

```
=====
Node Index                                     : 1
Local Network                                 : 96
Local Network Plus One                       : 96
Local Network Plus Two                      : 96
Site Minus One                               : 80
Intra Site                                  : 80
Site Plus One                               : 72
Organization Minus One                      : 72
Intra Organization                          : 64
Organization Plus One                      : 64
Community Minus One                        : 64
Intra Community                            : 48
Community Plus One                        : 48
Regional                                   : 32
Inter Regional                             : 32
Global                                     : 0
```

```
switch_prompt #
```


PnniStats

Use PnniStats to display PNNI statistics for the switch.

Operators

show

Parameters

This parameter has no input parameters. Just enter **show pnnistats** at the switch prompt.

Output Parameter	Description
[Highest Version]	The highest version of PNNI protocol that the switch supports.
[Lowest Version]	The lowest version of PNNI protocol that the switch supports.
[DTL Count Originator]	Number of DTL stacks that the switch has originated as the DTLOriginator and placed into signalling messages. This includes the initial DTL stacks computed by the switch. It also includes any alternate route (second choice, third choice, etc.) DTL stacks computed by the switch in response to crankbacks.
[Crankback Count Originator]	Number of connection setup messages including DTL stacks originated by the switch that have cranked back to the at all levels of the hierarchy.
[Alternate Route Count Originator]	Number of alternate DTL stacks that the switch has computed and placed into signalling messages as the DTLOriginator.
[Route Fail Count Originator]	Number of times the switching system failed to compute a viable DTL stack as the DTLOriginator for some call. It indicates the number of times a call was cleared from this switching system due to originator routing failure.
[Route Fail Unreachable Originator]	Number of times the switching system failed to compute a viable DTL stack as the DTLOriginator because the destination was unreachable; that is, those calls that are cleared with the following in the cause information element (IE): Specified Transit Network Unreachable, or Destination Unreachable.

Descriptions

Operator	Parameters / Permissions	Description
show pnnistats	Administrator	Shows PNNI statistics for the switch.

Examples

```
switch_prompt # show pnnistats
```

```
PNNI Base Information
```

```
=====
Highest Version           : 1.0
Lowest Version            : 1.0
DTL Count Originator      : 0
DTL Count Border         : 1
Crankback Count Originator : 0
Crankback Count Border    : 0
Alternate Route Count Originator : 0
Alternate Route Count Border : 0
Route Fail Count Originator : 0
Route Fail Count Border    : 0
Route Fail Unreachable Originator : 0
Route Fail Unreachable Border : 0
```

```
switch_prompt #
```

PnniSummaryAddress

Use PnniSummaryAddress to manage summary address prefixes for the switch. A summary address is an abbreviation of a set of addresses, represented by an address prefix that all of the summarized addresses have in common. The switch advertises this information. Calls to any destinations matching the summary address may be routed to the switch.

Operators

add, delete, show

Parameters

Input Parameter	Description	Value/Field Size	Default
[Num]	Index number of the summary address as assigned by the console. Use the show pnnisummaryaddress all command to get a list of index numbers.	Positive integer or All	All
[Node Index]	Identifier of a logical node on the switch.	Positive integer	1
[SummaryAddress]	ATM end system address prefix for the summary.		No default
[PrefixLength]	The prefix length (in bits) for the summary.		No default
[SummaryType]	Address type.	Internal, Exterior	Internal
[Suppress]	Whether or not the switch advertises the summaries to its peer group. Possible values are: True and False. False specifies the summary is advertised. True specifies the summary is not advertised (is suppressed).	False, True	False

Output Parameter	Description
[Num]	Index number of the summary address as assigned by the console.
[Summary Address]	ATM end system address prefix for the summary.
[Summary Type]	Address type.
[Suppress]	Whether or not the switch advertises the summaries to its peer group.

If you give a specific [Num], the **show pnnisummaryaddress** command displays the following additional fields.

Output Parameter	Description
[Node Index]	Identifier of a logical node on the switch.
[Prefix Length]	Prefix length for the summary.
[State]	Whether or not the summary is currently being advertised by the switch to peer group. Possible values are: Active, Advertised, or Inactive.

Descriptions

Operator	Parameters / Permissions	Description
add pnnisummaryaddress	[NodeIndex] <nodeindex> [SummaryAddress] <summaryaddress> [PrefixLength] <prefixlength> [SummaryType] <summarytype> [Suppress] <suppress> Administrator	Sets parameters to configure a physical interface for PNNI routing.
delete pnnisummaryaddress	[NodeIndex] <nodeindex> [SummaryAddress] <summaryaddress> [PrefixLength] <prefixlength> Administrator	Deletes configuration for a physical interface for PNNI routing.
show pnnisummaryaddress	[Num] <num> Administrator	Displays current configuration settings for PNNI routing.

Examples

```
switch_prompt # add pnnisummaryaddress
```

```
NodeIndex(1)           :
SummaryAddress()       : 45:00:01
PrefixLength(152)     : 24
SummaryType(Internal)  :
Suppress(False)        :
```

```
switch_prompt #
```

```
switch_prompt # delete pnnisummaryaddress
```

```
NodeIndex(1)           :
SummaryAddress()       : 45:00:01
PrefixLength(152)     : 24
```

```
Summary Address #1
```

```
=====
```

```
Summary Address : 45:00:01
Prefix Length   : 24
Summary Type    : Internal
Suppress        : False
State           : Inactive
```

The summary address was deleted successfully.

```
switch_prompt #
```

```
switch_prompt # show pnnisummaryaddress
```

```
Num(ALL)           :
```

Num	Summary Address	Summary Type	Suppress
1	34:00:00:00:00:00:00:00:00:00:00:01	I	False
2	35:00:01	I	False
3	39:00:00:00:00:00:00:00:00:00:14:bf:80	I	False
4	47:00:01	I	False

```
switch_prompt #
```

```
switch_prompt # show pnnisummaryaddress 1
```

```
Summary Address #1
```

```
=====
```

```
Summary Address : 34:00:00:00:00:00:00:00:00:00:00:01
Prefix Length   : 104
Summary Type    : Internal
Suppress        : False
State           : Advertised
```

```
switch_prompt #
```

PnniSvccRcc

Use PnniSvccRcc to display status of the switched virtual channel connection (SVCC) used by the routing control channel (RCC) of a logical node on the switch.

Operators

show

Parameters

Input Parameter	Description	Value/Field Size	Default
[NodeIndex]	Identifier of a logical node on the switch.	Positive integer	1
[SvccRccIndex]	Index number of the SVCC as assigned by the console.	Positive integer or All	All

Output Parameter	Description
[Svcc Rcc Index]	Index number of the SVCC as assigned by the console.
[VPI]	Virtual path identifier of the SVCC.
[VCI]	Virtual channel identifier of the SVCC.
[Port]	Physical port number on the switch.
[Rcv Hellos]	Number of Hello packets received by the switch.
[Xmt Hellos]	Number of Hello packets transmitted from the switch.
[Hello State]	Indicates the state of the Hello protocol from the logical node. Possible values are: Down, Attempt, 1WayInside, 2WayInside, 1WayOutside, 2WayOutside, and CommonOutside.

Descriptions

Operator	Parameters / Permissions	Description
show pnnisvccrcc	[NodeIndex] <nodeindex> [SvccRccIndex] <svccrccindex> Administrator	Displays status of the SVCC used as the routing control channel for the logical node.

Examples

```
switch_prompt # show pnnisvccrcc
NodeIndex(2)           : 2
SvccRccIndex(ALL)      :

Svcc Rcc Index  VPI  VCI  Port  Rcv Hellos  Xmt Hellos  Hello State
=====
   1           0    32   1A1    113472    113534    2WayInside

switch_prompt #
```

PnniTnsRoute

Use PnniTnsRoute to manage routes to transit networks that are visible to the switch.

Operators

add, delete, show

Parameters

Input Parameter	Description	Value/Field Size	Default
[Num]	Index number of the route as assigned by the console. Use the show pnnitnsroute all command to get a list of index numbers.	Positive integer or All	All
[PortNumber]	Port number on the switch. You can specify a physical or virtual port.	1A1 to 8B4 (for physical ports), 1A1. <i>n</i> to 8B4. <i>n</i> (for virtual ports), or All	All
[TnsType]	Transit network ID type.	NationNetworkId, Other	NationalNetworkId
[TnsPlan]	Transit network ID plan.	CarrierIdCode, Other	CarrierIdCode
[TnsId]	Transit network ID.		No default
[TnsIndex]	Index into the set of listings of connectivity to a given transit network from the switch.	Positive integer	0
[RouteType]	Type of reachability from the switch to the transit network.	Exterior, Other	Exterior
[PnniScope]	PNNI scope of advertisement (level of PNNI hierarchy) from the switch to the route.		0
[MetricsTag]	Metrics tag assigned to the connection with the transit network.		0

Output Parameter	Description
[Node Index]	Identifier of a logical node on the switch.

Output Parameter	Description
[TNS Type]	Transit network ID type. Possible values are: NationNetworkId and Other.
[TNS Plan]	Transit network ID plan. Possible values are: CarrierCodeId or Other.
[TNS ID]	Transit network ID.
[Index]	Index into the set of listings of connectivity to a given transit network from the switch.
[Port Number]	Sequence number of the instance of the PTSE as it appears in the local topology database. An integer in hexadecimal format.
[Adv Node Id]	The value of the PTSE checksum as it appears in the local topology database. An integer in hexadecimal format.
[Adv Port Id]	The value of the remaining lifetime for the given PTSE as it appears in the local topology database. Expressed in seconds.
[Route Type]	Type of reachability from the switch to the transit network. Possible values are: Exterior and Other.
[Protocol]	Routing mechanism used to determine connectivity between the switch and the reachable address prefix. Possible values are: Other, Local, Mgmt, and PNNI.
[Scope]	PNNI scope of advertisement (level of PNNI hierarchy) from the switch to the route.
[Vp Cap.]	Whether or not VPCs can be established from the advertising node to the transit network.
[Metrics Tag]	Metrics tag assigned to the connection with the transit network.
[PTSE Id]	For reachable addresses learned through PNNI, this parameter contains the value of the PTSE identifier for the PTSE that is originated by the originating node and contains the information group(s) describing the reachable address. For reachable addresses learned by means other than PNNI, this parameter is set to zero.
[Oper Status]	Whether or not the reachable address prefix is operationally valid and whether it is advertised by this node. Possible values are: Advertised, Active, and Inactive.

Descriptions

Operator	Parameters / Permissions	Description
add pnnitnsroute	[PortNumber] <portnumber> [TnsType] <tnstype> [TnsPlan] <tnsplan> [TnsId] <tnsid> [Index] <index> [RouteType] <routetype> [PnniScope] <pnniscope> [MetricsTag] <metricstag> Administrator	Adds a TNS route from the switch.
delete pnnitnsroute	[TnsType] <tnstype> [TnsPlan] <tnsplan> [TnsId] <tnsid> [Index] <index> Administrator	Deletes a TNS route from the switch.

Examples

```
switch_prompt # add pnnitnsroute
```

```

PortNumber()           : 1A2
TnsType(NationalNetworkId) :
TnsPlan(CarrierIdCode)  :
TnsId()                 : 90:00:00:01
Index(0)                :
RouteType(Exterior)     :
PnniScope(0)            :
MetricsTag(0)           :
```

```

switch_prompt # delete pnnitnsroute
TnsType(NationalNetworkId)      :
TnsPlan(CarrierIdCode)          :
TnsId()                          : 39:00:00:01
Index(0)                        :
Transit Network Route Number 0
=====
Node Index   : 1
TNS Type     : NationalNetworkId
TNS Plan     : CarrierIdCode
TNS ID       : 90:00:00:01
Index        : 0x0
Port Number  : A1.0
Adv Node Id  : 50:a0:39:00:00:00:00:00:00:00:00:28:de:80:00:20:d4:28:de:ff:00
Adv Port Id  : 0x1000
Route Type   : Exterior
Protocol     : MGMT
Scope        : 0
Vp Cap.      : True
Metrics Tag  : 0x0
PTSE Id      : 0x0
Oper Status  : Advertised
Time Stamp   : 0x605489

```

The TNS route was deleted successfully.

```
switch_prompt #
```

```

switch_prompt # show pnnitnsroute
Num(ALL)                                              :

Num Port      TNS Type      TNS Plan      TNS Id      TNS Index  Type Proto
=====
1   1A2       NationalNetworkId CarrierIdCode 90:00:00:01      0 E   MGMT
2   --       NationalNetworkId CarrierIdCode 90:00:00:01    4369 E   PNNI

```

```
switch_1 #
```

Port

Use Port to add or delete a virtual port on the switch.



Note The following applies to SmartSwitch 6500 only: You can hot-swap TSMs. Hot-swapping is replacing a module when the chassis is powered up. If you replace a TSM with another TSM of the same type (same I/O ports), existing configuration of port parameters is not affected. This includes parameters set using any of the following attributes: ATMRoute, CACServiceClassBw, IlmiConfig, NetPrefix, Port, PortConfig, PVC, PVP, ServiceRegistry, SigTimer, SigStatistics, SSCOPConfig, and SSCOPStatistics. If you replace a TSM with another TSM of a different type, existing configuration of port parameters is deleted. The deletion occurs when the new module is plugged into the chassis backplane.

Operators

add, delete

Parameters

This attribute has no output parameters.

Input Parameter	Description	Value/Field Size	Default
[PortNumber]	Port number on the switch.	A1.n to B4.n (2500 family) 1A1.n to 8B4.n (6500)	No default
[PortAdminStatus]	Enables/disables administrative status of the port. If the port is Down, it remains idle with no activity (such as signalling, ILMI, or PVCs).	Up, Down	Up
[IlmiAdminStatus]	Enables/disables ILMI status of the port.	Up, Down	Up
[SigType]	Type of signalling on the port. autoConfig means ILMI determines signalling type by negotiation (hence ILMI cannot be disabled for SigType autoConfig). pvcUni and pvcNni disable signalling.	autoConfig, uni30, uni31, uni40 iisp30, iisp31, pnni10, uniPvc, nniPvc	autoConfig
[SigRole]	Signalling role.	Other, Network, User	Other
[InterfaceType]	Interface type.	Public, Private	Private

Input Parameter	Description	Value/Field Size	Default
[MaxVpiBits]	Maximum number of VPI bits.	0-6	No default
[MaxVciBits]	Maximum number of VCI bits.	6-12	No default
[MaxSvcVpci]	Maximum VPCIs available for SVCs.	$0-2^{(\text{MaxVpiBits})}-1$	No default
[MinSvcVci]	Minimum VCIs available for SVCs.	$32-2^{(\text{MaxVciBits})}-1$	No default
[MaxVccs]	Maximum number of VCCs available.	$32-2^{(\text{MaxVpiBits} + \text{MaxVciBits})}$	No default
[TrafficDescriptorIndex]	Traffic descriptor of the virtual path originating/terminating on this virtual port.	Positive integer	No default

Descriptions

Operator	Parameters/Permissions	Description
add port	[PortNumber] <portnumber> [PortAdminStatus] <portadminstatus> [Ilmiadminstatus] <ilmiadminstatus> [SigType] <sigtype> [SigRole] <sigrole> [InterfaceType] <interfacetype> [MaxVpiBits] <maxvpibits> [MaxVciBits] <maxvcibits> [MaxSvcVpci] <maxsvcvpci> [MinSvcVci] <minsvcvci> [MaxVccs] <maxvccs> [TrafficDescriptorIndex] <trafficdescriptorindex> All	Adds a virtual port.
delete port	[PortNumber] <portnumber> Administrator	Deletes a virtual port.

Examples

```
switch_prompt # add port
```

```
PortNumber( )           : 1a1.1
PortAdminStatus(up)     :
IlmiAdminStatus(enable) :
SigType(autoConfig)     :
SigRole(other)          :
InterfaceType(private)  :
MaxVpiBits(0)           :
MaxVciBits(10)          :
MaxSvcVpci(0)           :
MinSvcVci(32)           :
MaxVccs(1024)           :
TrafficDescriptorIndex() : 2
```

```
switch_prompt #
```

```
switch_prompt # delete port
```

```
PortNumber( )           : 1a1.1
```

```
switch_prompt #
```

PortClockMode

Use PortClockMode to set the clock mode of a switch port.

Operators

modify, show

Parameters

Input Parameter	Description	Value/Field Size	Default
[PortNumber]	Port number on the switch.	A1 to B4 (2500 family), 1A1 to 8B4 (6500), or All	All
[PortClkMode]	Clocking mode (see Table 2-8).	Local, Loop, Network	Local

Output Parameter	Description
[Port Number]	Physical port number on the switch.
[Configured Mode]	Configured clock mode.
[Actual Mode]	Actual clock mode.

Descriptions

Operator	Parameters/Permissions	Description
modify portclockmode	[PortNumber] <portnumber> [PortClkMode] <portclkmode> Administrator	Sets the clock mode used at each port.
show portclockmode	Administrator	Displays the clock mode used at each port.

Table 2-8 Port Clock Modes

Mode	Description
Loop	Port clock is set to looped timing.
Local	Port clock is set to split timing using the local clock on the switch.
Network	Port clock is set to split timing using the network clock of the switch.

Examples

```
switch_prompt # show portclockmode
PortNumber(ALL)
:
Port Number      Configured Mode    Actual Mode
=====
7A1              local              local
7A2              local              local
7A3              local              local
7A4              local              local
7B1              local              local
7B2              local              local
7B3              local              local
```

```
switch_prompt # set portclockmode
PortNumber(ALL)      : 7a1
PortClkMode(local)   : loop
```

```
switch_prompt #
```

```
switch_prompt # show portclockmode
PortNumber(ALL)
:
Port Number      Configured Mode    Actual Mode
=====
7A1              loop              loop
7A2              local              local
7A3              local              local
7A4              local              local
7B1              local              local
7B2              local              local
7B3              local              local
```

```
switch_prompt #
```


PortConfig

Use PortConfig to manage configuration of switch ports.



Note The following applies to SmartSwitch 6500 only: You can hot-swap TSMs. Hot-swapping is replacing a module when the chassis is powered up. If you replace a TSM with another TSM of the same type (same I/O ports), existing configuration of port parameters is not affected. This includes parameters set using any of the following attributes: ATMRoute, CACServiceClassBw, IlmiConfig, NetPrefix, Port, PortConfig, PVC, PVP, ServiceRegistry, SigTimer, SigStatistics, SSCOPConfig, and SSCOPStatistics. If you replace a TSM with another TSM of a different type, existing configuration of port parameters is deleted. The deletion occurs when the new module is plugged into the chassis backplane.

Operators

modify, show

Parameters

Input Parameter	Description	Value/Field Size	Default
[PortNumber]	Port number on the switch. You can specify a physical or virtual port.	1A1 to 8B4 (for physical ports), 1A1.n to 8B4.n (for virtual ports, or All	All
[PortAdminStatus]	Enables/disables administrative status of the port. If the port is Down, it remains idle with no activity (such as signalling, ILMI, or PVCs).	Up, Down	Up
[IlmiAdminStatus]	Enables/disables ILMI status of the port.	Up, Down	Up
[SigType]	Type of signalling on the port. autoConfig means ILMI determines signalling type by negotiation (hence ILMI cannot be disabled for SigType autoConfig). pvcUni and pvcNni disable signalling.	autoConfig, uni30, uni31, uni40 iisp30, iisp31, pnni10, uniPvc, nniPvc	autoConfig
[SigRole]	Signalling role.	Other, Network, User	Other
[InterfaceType]	Interface type.	Public, Private	Private
[MaxVpiBits]	Maximum number of VPI bits.	0-6	No default

Input Parameter	Description	Value/Field Size	Default
[MaxVciBits]	Maximum number of VCI bits.	6-12	No default
[MaxSvcVpci]	Maximum VPCIs available for SVCs.	$0-2^{(\text{MaxVpiBits}) - 1}$	No default
[MinSvcVci]	Minimum VCIs available for SVCs.	$32-2^{(\text{MaxVciBits}) - 1}$	No default
[MaxVccs]	Maximum number of VCCs available.	$32-2^{(\text{MaxVpiBits} + \text{MaxVciBits})}$	No default
[MaxSvpVpci]	Maximum number of VPCIs available for SVPs.	$0-2^{(\text{MaxVpiBits}) - 1}$	No default
[MaxVpcs]	Maximum number of VPCs.	$0-2^{(\text{MaxVpiBits})}$	No default

**Note**

The following applies to SmartSwitch 6500 only: If you hot-swap a TSM with a TSM of a different type (different I/O ports), port configuration of the original TSM is deleted. Before you insert a replacement TSM, you can display existing port configuration using the **show** operator with the **/o** option (for example: **show portconfig /o**).

In the Output Parameter table below, (</d>) indicates parameters that are available only through the **show portconfig /a** (detailed) command. The display shows both current and configured state of the parameters.

Output Parameter	Description
[Port Name]	Port number on the switch. (Same as the [PortNumber] input parameter.)
[Intf Type]	Interface type. (Same as the [InterfaceType] input parameter.)
[Sig Type]	Type of signaling on the port. Possible values are: autoConfig, uni30, uni31, uni40, iisp30, iisp31, pnai10, pvcUni, pvcNni.
[ILMI State]	ILMI status of the port. Possible values are: Up or Down.
[Trans Type]	Type of physical interface.
[Media Type]	Type of media.
[Max Bw (MBS)]	Maximum port bandwidth.
[Used Bw (MBS)]	Port bandwidth used.
[Sig Role] </d>	Signaling role.

Output Parameter	Description
[Max Vpi bits] </d>	Maximum number of VPI bits.
[Max Vci bits] </d>	Maximum number of VCI bits.
[Max SVC Vpci] </d>	Maximum number of VPCIs available for SVCs
[Max SVC Vci] </d>	Maximum number of VCIs available for SVCs.
[Max Vccs] </d>	Maximum number of VCCs.
[Max Svp Vpci] </d>	Maximum number of VPCIs available for SVPs.
[Max Vpcs] </d>	Maximum number of VPCs.
[Port State] </d>	Port operational and administrative states.
[Port Bandwidth] </d>	Maximum and used port bandwidth.

Descriptions

Operator	Parameters/Permissions	Description
modify portconfig	[PortNumber] <portnumber> [PortAdminStatus] <portadminstatus> [IlmiAdminStatus] <ilmiadminstatus> [SigType] <sigtype> [SigRole] <sigrole> [InterfaceType] <interfacetype> [MaxVpiBits] <maxvpibits> [MaxVciBits] <maxvcibits> [MaxSvcVpci] <maxsvcvpci> [MinSvcVci] <maxvcvci> [MaxVccs] <maxvccs> [MaxSvpVpci] <maxsvpvpci> [MaxVpcs] <maxvpcs> Administrator	Sets port configuration.
show portconfig	[PortNumber] <portnumber> All	Displays port configuration.

Examples

```
switch_prompt # show portconfig
```

```
PortNumber(ALL) :
```

Port Name	Intf Type	Sig Type	ILMI State	Trans Type	Media Type	Max Bw(MBS)	Used Bw(MBS)	Oper State
CPU	private	uni40	down			155.0	10.50	up
CPU.1	private	pnni10	down			10.50	0.0	up
7A1	private	pnni10	up	STS-3c	MMF (S)	155.0	0.0	up
7A2	private	autoConfig	down	STS-3c	MMF (S)	155.0	0.0	down
7A3	private	pnni10	up	STS-3c	MMF (S)	155.0	0.0	up
7A4	private	autoConfig	down	STS-3c	MMF (S)	155.0	0.0	down
7B1	private	autoConfig	down	STS-3c	MMF (S)	155.0	0.0	down
7B2	private	autoConfig	down	STS-3c	MMF (S)	155.0	0.0	down
7B3	private	autoConfig	down	STS-3c	MMF (S)	155.0	0.0	down

```
switch_prompt #
```

```
switch_prompt # modify portconfig
```

```
PortNumber() : 7a1
PortAdminStatus(up) : down
IlmiAdminStatus(up) :
SigType(autoConfig) :
SigRole(other) :
InterfaceType(private) :
MaxVpiBits(0) :
MaxVciBits(13) :
MaxSvcVpci(0) :
MinSvcVci(32) :
MaxVccs(8192) :
MaxSvpVpci(0) :
MaxVpcs(0) :
```

```
Smart6500_1 # NOTICE - 'tZLinkStatus' Port 7A1 (49) DOWN
```

```
switch_prompt #
```

```
switch_prompt # show portconfig /d
```

```
PortNumber(ALL) : 7a1
=====
Port Name : 7A1
Trans Type : STS-3c
Media Type : MMF (S)
=====
Parameters          Configured      Current
-----
Sig Type             autoConfig      autoConfig
Sig Role             other           other
Interface Type       private        private
Max Vpi Bits         0              0
Max Vci Bits         13            13
Max Svc Vpci         0              0
Min Svc Vci          32            32
Max Vccs             8192           8192
Max Svp Vpci         0              0
Max Vpcs             0              0
ILMI State           Admin State up  Oper State down
Port State           Admin State down Oper State down
Port Bandwidth       Max 155.0 MBS  Used 0.0 MBS
```

```
switch_prompt #
```

PortFilterSet

Use PortFilterSet to associate an ATM filter set with a pair of incoming and outgoing ports.

Operators

add, delete, modify, show

Parameters .

Input Parameter	Description	Value/Field Size	Default
[IncomingPort]	Port number on the switch (that specifies the incoming port).	A1 to B4 (2500 family), 1A1 to 8B4 (6500), or All	
[OutgoingPort]	Port number on the switch (that specifies the outgoing port).	A1 to B4 (2500 family), 1A1 to 8B4 (6500), or All	
[FilterSetName]	Name of the ATM filter set.	15-characters maximum	

Output Parameter	Description
[InComingPort]	Port number on the switch that specifies the incoming port.
[OutgoingPort]	Port number on the switch that specifies the outgoing port.
[FilterSetName]	Name of the ATM filter set.
[TotalAdmits]	Number of calls that were acted on by this filter set that have passed through.
[TotalDenies]	Number of calls that were acted on by this filter set that have not passed through.

Descriptions

Operator	Parameters/Permissions	Description
add portfilterset	[InComingPort] <incomingport> [OutgoingPort] <outgoingport> [FilterSetName] <filtersetname> Administrator	Adds an ATM filter set to a pair of incoming and outgoing ports.
delete portfilterset	[InComingPort] <incomingport> [OutgoingPort] <outgoingport> [FilterSetName] <filtersetname> Administrator	Deletes an ATM filter set from a pair of incoming and outgoing ports.
modify portfilterset	[InComingPort] <incomingport> [OutgoingPort] <outgoingport> [FilterSetName] <filtersetname> Administrator	Modifies an association between an ATM filter set and a pair of incoming or outgoing ports.
show portfilterset	[InComingPort] <incomingport> [OutgoingPort] <outgoingport> Administrator	Displays associations between ATM filter sets and switch ports.

Examples

```

switch_prompt # show atmfilterset
FilterName(ALL)
:

FilterSetName      TotalAdmits  TotalDenies  ReferenceCount
=====
SET1                0            0            1

switch_prompt # add portfilterset
InComingPort()      : 5b4
OutGoingPort()      : 7a3
FilterSetName()     : set1

switch_prompt # show portfilterset
InComingPort(ALL)   :

InComingPort  OutGoingPort  FilterSetName  TotalAdmits  TotalDenies
=====
5B4           7A3           SET1           0            0

switch_prompt #

```

PortMode

Use PortMode to manage transmission characteristics of switch ports.



Note See Table 2-9 for supported I/O modules (and corresponding port types).

Operators

modify, show

Parameters

In the parameter tables below, text in parenthesis indicates parameters that appear only for particular port types. For example, [EmptyCell] appears only if you use **modify portmode** or **show portmode** on 34 Mbps or 45 Mbps ports.

Input Parameter	Description	Field Size/Value	Default
[PortNumber]	Port number on the switch.	1A1 to 8B4 or All	All
[PortMode] [Mode]	Port physical mode.	for 34 Mbps: ADM, ADM751, PLCP for 45 Mbps: PLCP, HCS for 155 Mbps: SONET, SDH for 622 Mbps: SONET, SDH	No default
[Scrambling] (34, 45, 622 Mbps)	Enables or disables scrambling. Scrambling is bit-level signal processing applied to data streams prior to transmission. Scrambling can reduce signal interference.	for 34 Mbps: Off, On for 45 Mbps: Off, On for 622 Mbps: Off, On	Off
[EmptyCell] (34, 45 Mbps)	Type of cells sent as filler when the port is not sending data.	for 34 Mbps: Unassigned, Idle for 45 Mbps: Unassigned, Idle	Unassigned
[Framing] (45 Mbps only)	Type of framing used.	CBIT, CCHANNEL	
[Length] (45 Mbps only)	Line length for port (corresponds to length of cable attached to port). GT225 means the cable is greater than 225 feet. LT225 means the cable is less than 255 feet.	GT225, LT225	

Input Parameter	Description	Field Size/Value	Default
[Timing] (622 Mbps only)	Enables or disables timing at the port. Timing can improve speed matching and sequencing of transmissions between the switch and network.	Disabled, Enabled	Disabled

Output Parameter	Description
[Port ID]	Port number. (Same as the [PortNumber] input parameter.)
[Frame Type] (155, 622 Mbps)	Port physical Mode. (Same as the [PortMode] input parameter.)
[Scrambling] (34, 45, 622 Mbps)	Enables or disables scrambling. Scrambling is bit-level signal processing applied to data streams prior to transmission. Scrambling can reduce signal interference.
[EmptyCell] (34, 45 Mbps)	Type of cells sent as filler when the port is not sending data.
[Framing] (45 Mbps only)	Type of framing used.
[Length] (45 Mbps only)	Line length for port (corresponds to length of cable attached to port). GT225 means the cable is greater than 225 feet. LT225 means the cable is less than 255 feet.
[Timing] (622 Mbps only)	Enables or disables timing at the port. Timing can improve speed matching and sequencing of transmissions between the switch and network.

Descriptions

Operator	Parameters/Permissions	Description
modify portmode	[PortNumber]<portnumber> [PortMode]<portmode> Administrator	Sets transmission characteristics of switch ports.
show portmode	[PortNumber]<portnumber> All	Displays transmission characteristics of switch ports.

Table 2-9 I/O Module ID Numbers

Face Plate Number	Physical Specification
IOM-21-4	155 Mbps OC-3/STM-1, MMF/SC (4 port)
IOM-22-4	155 Mbps STS-3c/STM-1, UTP-5/RJ-45 (4 port)
IOM-29-4	155 Mbps OC-3/STM-1, SMF-IR/SC (1 port) MMF/SC (3 port)
IOM-29-4-IR	155 Mbps OC-3/STM-1, SMF-IR/SC (4 port)
IOM-29-4-LR	155 Mbps OC-3/STS-1, SMF-LR/SC (4 port)
IOM-31-1	622 Mbps OC-12/STM-4, MMF/SC (1 port)
IOM-39-1	622 Mbps OC-12/STM-4, SMF-IR/SC (1 port)
IOM-39-1-LR	622 Mbps OC-12/STM-4, SMF-LR/SC (1 port)
IOM-67-4	45 Mbps DS-3, Coax/BNC (4 port)
IOM-77-4	34 Mbps E-3, Coax/BNC (4 port)

Examples

```
switch_prompt # show portconfig
```

```
PortNumber(ALL) :
```

Port Name	Intf Type	Sig Type	ILMI State	Trans Type	Media Type	Max Bw(MBS)	Used Bw(MBS)	Oper State
1A1	private	autoConfig	down	STS-3c	CAT5 UTP	155.0	0.0	down
1A2	private	autoConfig	down	STS-3c	CAT5 UTP	155.0	0.0	down
1A3	private	autoConfig	down	STS-3c	CAT5 UTP	155.0	0.0	down
2B1	private	autoConfig	down	DS3	Coax	42.66	0.0	down
2B2	private	pnni10	up	DS3	Coax	42.66	0.0	up
CPU	private	uni40	down			155.0	10.50	up
CPU.1	private	pnni10	down			10.50	0.0	up

```
switch_prompt #
```

```
switch_prompt # show portmode 2b2
```

Port	Type	Mode	Framing	EmptyCell	Scrambling	Length
2B2	DS3	PLCP	CBIT	UNASSIGNED	Off	GT225

```
switch_prompt # set portmode 2b2
```

```
Mode(PLCP) :
Framing(CBIT) : cchannel
EmptyCell(UNASSIGNED) :
Scrambling(Off) :
Length(GT225) :
```

```
NOTICE - 'tConsole' Port 2B2 (6) DOWN
```

```
switch_prompt # NOTICE - 'tZLinkStatus' Port 2B2 (6) UP
```

```
switch_prompt # show portmode 1b2
```

Port	Type	Mode	Framing	EmptyCell	Scrambling	Length
2B2	DS3	PLCP	CCHANNEL	UNASSIGNED	Off	GT225

```
switch_prompt #
```

PortStat

Use PortStat to display or clear traffic statistics for switch ports.

Operators

show, clear

Parameters

Input Parameter	Description	Value/Field Size	Default
[PortNumber]	Port number on the switch.	A1 to B4 (2500 family), 1A1 to 8B4 (6500), or All	All

Output Parameter	Description
[Port ID]	Same as [PortNumber] input parameter.
[Total OAM Cells Received]	Total OAM (operations and maintenance) cells the system received.
[Total RM Cells Received]	Total cells dropped when the switch drops cells (includes those dropped when unknown VCs (virtual circuits) and CLP1 (cell loss priority) cells are dropped).
[Total Cells Dropped]	Total cells dropped across the system. (includes those dropped when unknown VCs (virtual circuits) and CLP1 (cell loss priority) cells are dropped).
[Total Unknown VC Cells Dropped]	Total unknown VC cells dropped.
[Total CLP1 Cells Received]	Total CLP1 cells received.
[Total CLP1 Cells Dropped]	Total CLP1 cells dropped.

Descriptions

Operator	Parameters/Permissions	Descriptions
show portstat	[PortNumber] <portnumber> All	Displays ATM statistics for a given port or all ports, represented in number of cells. These statistics relate to network resources management, congestion, and performance issues. The counter has a 32-bit maximum before it wraps around. Enter show portstat /d (detail) to obtain more details about the ports. Use clear portstat to reset port statistic counters.
clear portstat	[PortNumber] <portnumber> All	Clears the ATM cell counts and reinitializes all port statistics to “0” for the specified port or all ports. This command clears only the software values and does not flush the hardware registers, which might have counts accumulated since the registers were last read.

Examples

```
switch_prompt # show portstat
```

```
PortNumber(ALL)
```

```
:
```

Port ID	OAM Recvd	RM Recvd	CLP1 Recvd	Unk VC Dropped	CLP1 Dropped	Total Dropped
1A1	0	0	0	0	0	0
1A2	0	0	0	0	0	0
1A3	0	0	0	0	0	0
1A4	0	0	0	13839	0	13839
2B1	0	0	0	0	0	0
2B2	0	0	0	0	0	0
CPU	0	0	0	0	0	0

```
switch_prompt #
```

```
switch_prompt # show portstat /d
```

```
PortNumber(ALL)
```

```
:
```

```
Port 1A1      Statistics
```

```
=====
OAM Cells Received      : 0
RM Cells Received      : 0
CLP1 Cells Received    : 0
Unknown VC Cells Dropped : 0
CLP1 Cells Dropped     : 0
Total Cells Dropped     : 0
```

```
Port 1A2      Statistics
```

```
=====
OAM Cells Received      : 0
RM Cells Received      : 0
CLP1 Cells Received    : 0
Unknown VC Cells Dropped : 0
CLP1 Cells Dropped     : 0
Total Cells Dropped     : 0
```

```
Port 1A3      Statistics
```

```
=====
OAM Cells Received      : 0
RM Cells Received      : 0
CLP1 Cells Received    : 0
Unknown VC Cells Dropped : 0
CLP1 Cells Dropped     : 0
Total Cells Dropped     : 0
```

```
Port 1A4      Statistics
```

```
=====
OAM Cells Received      : 0
RM Cells Received      : 0
CLP1 Cells Received    : 0
Unknown VC Cells Dropped : 13851
CLP1 Cells Dropped     : 0
Total Cells Dropped     : 13851
OAM Cells Received      : 0
RM Cells Received      : 0
CLP1 Cells Received    : 0
Unknown VC Cells Dropped : 0
CLP1 Cells Dropped     : 0
Total Cells Dropped     : 0
```

PortStat

Port 2B1 Statistics

```
=====
OAM Cells Received           : 0
RM Cells Received            : 0
CLP1 Cells Received          : 0
Unknown VC Cells Dropped     : 0
CLP1 Cells Dropped           : 0
Total Cells Dropped          : 0
```

Port 2B2 Statistics

```
=====
OAM Cells Received           : 0
RM Cells Received            : 0
CLP1 Cells Received          : 0
Unknown VC Cells Dropped     : 0
CLP1 Cells Dropped           : 0
Total Cells Dropped          : 0
```

CPU Statistics

```
=====
OAM Cells Received           : 0
RM Cells Received            : 0
CLP1 Cells Received          : 0
Unknown VC Cells Dropped     : 16777215
CLP1 Cells Dropped           : 0
Total Cells Dropped          : 16777215
switch_prompt #
```

PortTrafficCongestion

Use PortTrafficCongestion to manage traffic congestion at switch ports. You can program the values for the minimum and maximum threshold (in number of cells) for a specified priority queue. If the number of cells received by the switch on the specified priority queue for a port exceeds the maximum threshold, the switch discards the cell.



Note

You program values for minimum and maximum threshold by entering index numbers that correspond to cell numbers. Use MinMaxTableIndex to see the correspondance between index numbers and cell numbers.

Operators

modify, show

Parameters

Parameter	Description	Value/Field Size	Default
[PortNumber]	Port number on the switch.	A1 to B4 (2500 family), 1A1 to 8B4 (6500), or All	All
[QueueNumber]	Priority queue.	1-5	No default
[MinIndexNumber]	Index number for minimum cell threshold value. Enter show minmaxtable to view possible values.	0-15	No default
[MaxIndexNumber]	Index number for maximum cell threshold value. Enter show minmaxtable to view possible values.	0-15	No default

Output Parameter	Description
[Port ID]	Port number on the switch.
[QueueId]	Priority queue. (Same as the [QueueNumber] input parameter.)
[ServiceClass]	Service category. Possible values are: CBR, RTVBR, NRTVBR, ABR, and UBR.
[MinIndex]	Index number for minimum cell threshold value. (Same as the [MinIndexNumber] input parameter.)

Output Parameter	Description
[MinValue]	Minimum cell threshold value (in number of cells).
[MaxIndex]	Index number for maximum cell threshold value. (Same as the [MaxIndexNumber] input parameter.)
[MaxValue]	Maximum cell threshold value (in number of cells).

Descriptions

Operator	Parameters/Permissions	Description
modify porttrafficcongestion	[PortNumber] <portnumber> [QueueNumber] <queuenumber> [MinIndexNumber] <minindexnumber> [MaxIndexNumber] <maxindexnumber> Administrator	Sets traffic congestion parameters for a specified port. You can change the minimum and maximum buffer thresholds (in cells) for each priority queue. Cell buffer memory then reserves the minimum buffer size for cells on the specified priority queue of that port. Cells are discarded when the maximum buffer threshold is reached. Use MinMaxTable to view possible values for minimum and maximum threshold
show porttrafficcongestion	[PortNumber] <portnumber> All	Displays traffic congestion settings for ports. The minimum buffer threshold is reserved in cell buffer memory for cells in the specified priority queue for the given port. Cells are discarded when the maximum buffer threshold is reached.

Examples

```
switch_prompt # show porttrafficcongestion
PortNumber(ALL) :
```

```
PortID QueueId ServiceClass MinIndex MinValue MaxIndex MaxValue
```

```
=====
CPU    1      CBR          10      64      15      1024
CPU    2      RTVBR         8      256     13      4096
CPU    3      NRTVBR        8      256     13      4096
CPU    4      ABR           8      256     12      8192
CPU    5      UBR           8      256     12      8192
```

```
PortID QueueId ServiceClass MinIndex MinValue MaxIndex MaxValue
```

```
=====
7A1    1      CBR          10      64      15      1024
7A1    2      RTVBR         8      256     13      4096
7A1    3      NRTVBR        8      256     13      4096
7A1    4      ABR           8      256     12      8192
7A1    5      UBR           8      256     12      8192
```

```
switch_prompt # show minmaxtableindex
```

```
-----
MinIndex  MinValue  MaxIndex  MaxValue
-----
```

```
0          65536    0          1048576
1          32768    1           786432
2          16384    2           524288
3           8192    3           393216
4           4096    4           262144
5           2048    5           196608
6           1024    6           131072
7            512    7            98304
8            256    8            65536
9            128    9            49152
10           64    10           32768
11           32    11           16384
12           16    12            8192
13            8    13            4096
14            4    14            2048
15            0    15            1024
```

```
switch_prompt # modify porttrafficcongestion 7a1
QueueNumber() : 3
MinIndexNumber() : 9
MaxIndexNumber() : 14
```

```
switch_prompt #
```

```
switch_prompt # modify porttrafficcongestion 7b3
```

```
PortID QueueId ServiceClass MinIndex MinValue MaxIndex MaxValue
```

```
=====
7B3    1      CBR          10      64      15      1024
7B3    2      RTVBR         8      256     13      4096
7B3    3      NRTVBR        9      128     14      2048
7B3    4      ABR           8      256     12      8192
7B3    5      UBR           8      256     12      8192
```

```
switch_prompt #
```

Privilege

Use Privilege to manage the privilege level of the current user.

Operators

show, enable, disable

Parameters

This attribute has no output parameters.

Input Parameter	Description	Value/Field Size	Default
[Password]	Current password for that privilege level.	0-8 characters	No default

Descriptions

Operator	Parameters/Permissions	Description
show privilege	All	Displays the privilege level of the current user. The two available levels are Administrator and Read Only.
enable	[Password] <currentpassword> Read Only	Raises the privilege level. There are two levels in the switch—Read-Only and Administrator. If you are logged on with a Read-Only privilege status and then issue this command, the switch prompts you for the Administrator [Password] before allowing access to Administrator commands.
disable	Administrator	Lowers the privilege level from Administrator to Read Only. No password is required.

Examples

```
switch_prompt # show privilege
The current user is Administrator
switch_prompt #
```

```
switch_prompt # enable
password: *****
switch_prompt # disable
The current user is ReadOnly
switch_prompt #
```

Prompt

Use Prompt to control how the switch prompt is displayed on the console monitor.

Operators

modify

Parameters

This attribute has no output parameters.

Input Parameter	Description	Value/Field Size	Default
[Prompt]	New prompt name.	1-25 characters	switch_prompt

Descriptions

Operator	Parameters/Permissions	Description
modify prompt	[Prompt] <newpromptname> Administrator	Changes the displayed prompt on your console monitor.

Example

```
switch_prompt # set prompt
Prompt(switch_prompt) : My_Switch
My_Switch #
```

PVC

Use PVC to manage PVCs on the switch. You assign two physical or virtual ports on the switch as PVC endpoints.



Note When you add the PVC, the endpoints are called Port 1 and Port 2 (corresponding to order of entry). For subsequent action on the PVC (activate, deactivate, show, delete), the endpoints are called High Port and Low Port. High and Low are based on the lexical order of the port numbers. For example, port 2B1 is higher than port 1B1, port 2B2 is higher than port 2B1, and so on.



Note The following applies to SmartSwitch 2500 family only: You can not delete, deactivate, or clear a PVC if an IP/ATM client is attached to the PVC through the IPATMPVC attribute.

Operators

activate, add, clear, deactivate, delete, show



Note The following applies to SmartSwitch 6500 only: You can hot-swap TSMs. Hot-swapping is replacing a module when the chassis is powered up. If you replace a TSM with another TSM of the same type (same I/O ports), existing configuration of port parameters is not affected. This includes parameters set using any of the following attributes: ATMRoute, CACServiceClassBw, IlmiConfig, NetPrefix, Port, PortConfig, PVC, PVP, ServiceRegistry, SigTimer, SigStatistics, SSCOPConfig, and SSCOPStatistics. If you replace a TSM with another TSM of a different type, existing configuration of port parameters is deleted. The deletion occurs when the new module is plugged into the chassis backplane.

Parameters

Input Parameter	Description	Value/Field Size	Default
[ConnType]	Connection type. Possible values are: Point-to-point (PTP) or Multipoint (PMP).	PTP, PMP	PTP

Input Parameter	Description	Value/Field Size	Default
[Port-1-Number]	Number of the first port assigned to the connection.	A1 to B4 (physical-2500 family), A1.n to B4.n (virtual-2500 family), 1A1 to 8B4 (physical-6500), 1A1.n to 8B4.n (virtual-6500)	No default
[Port-1-VPCI]	VPCI associated with Port 1.	Positive integer	No default
[Port-1-VCI]	VCI associated with Port 1.	Positive integer	No default
[Port-2-Number]	Number of the second port assigned to the connection.	A1 to B4 (physical-2500 family), A1.n to B4.n (virtual-2500 family), 1A1 to 8B4 (physical-6500), 1A1.n to 8B4.n (virtual-6500)	No default
[Port-2-VPCI]	VPCI associated with Port 2.	Positive integer	No default
[Port-2-VCI]	VCI associated with Port 2.	Positive integer	No default
[Port1-to-Port2TrafficDescriptorIndex]	Index of the traffic descriptor for the direction of flow from Port 1 to Port 2. Create this traffic descriptor before creating the PVC.	Positive integer	No default
[Port2-to-Port1TrafficDescriptorIndex]	Index of the traffic descriptor for the direction of flow from Port 2 to Port 1. Create this traffic descriptor before creating the PVC.	Positive integer	No default
[LowPortNumber]	Number of the Low Port (based on lexical order).	A1 to B4 (physical-2500 family), A1.n to B4.n (virtual-2500 family), 1A1 to 8B4 (physical-6500), 1A1.n to 8B4.n (virtual-6500)	No default
[Low VPCI]	VPCI of the Low Port.	Positive integer	No default
[LowVCI]	VCI of the Low Port.	Positive integer	No default
[HighPortNumber]	Number of the High Port (based on lexical order).	A1 to B4 (physical-2500 family), A1.n to B4.n (virtual-2500 family), 1A1 to 8B4 (physical-6500), 1A1.n to 8B4.n (virtual-6500)	No default
[HighVPCI]	VPCI of the High Port.	Positive integer	No default
[HighVCI]	VCI of the High Port.	Positive integer	No default

Input Parameter	Description	Value/Field Size	Default
[PortNumber]	Port number on the switch.	A1 to B4 (physical-2500 family), A1. <i>n</i> to B4. <i>n</i> (virtual-2500 family), 1A1 to 8B4 (physical-6500), 1A1. <i>n</i> to 8B4. <i>n</i> (virtual-6500)	No default
[CrossConnectId]	Cross-connect ID of the PVC (as assigned by switch software). Use the show pvc all command to get a list of cross-connect IDs. Each PTP PVC has a unique cross-connect ID. PMP PVCs might have the same cross-connect ID but different cross-connect sub IDs.	Positive integer	No default
[CrossConnectSubId]	Cross-connect sub-ID of the PVC (as assigned by switch software). Each PTP PVC and PMP PVC has a unique cross-connect sub-ID.	Positive integer	No default

In the Output Parameter table below, (</d>) indicates parameters that are available only through the **show pvc /d** (detailed) command.

Output Parameter	Description
[Conn Id]	Cross-connect ID of the PVC (as assigned by switch software). Each PTP PVC has a unique cross-connect ID. PMP PVCs might have the same cross-connect ID but different cross-connect sub IDs.
[Conn SubId]	Cross-connect sub-ID of the PVC. Each PTP PVC and PMP PVC has a unique cross-connect sub-ID.
[Low Port]	Number of the Low Port (based on lexical order).
[Low VPCI]	VPCI of the Low Port.
[Low VCI]	VCI of the Low Port.
[Low Type]	Connection type from perspective of Low Port.
[High Port]	Number of the High Port (based on lexical order).
[High VPCI]	VPCI of the High Port.
[High VCI]	VCI of the High Port.

Output Parameter	Description
[High Type]	Connection type from perspective of High Port.
[Admin Status]	Administrative status of the PVC. Possible values are: Up or Down.
[Low - High Traffic Decs Index (TX)] </d>	Index of the traffic descriptor in the direction of flow from Low Port to High Port.
[High - Low Traffic Decs Index (RX)] </d>	Index of of the traffic descriptor in the direction of flow from High Port to Low Port.
[Low to High Operation Status] </d>	Operational status of low-to-high connection. Possible values are: Up or Down.
[High to Low Operation Status] </d>	Operational status of high-to-low connection. Possible values are: Up or Down.
[Port Status] </d>	Operational status of port.
[Creation Time] </d>	Time the PVC was created (relative to the switch boot time).
[Traffic Type (High-Low)]	Traffic type in the high-to-low direction.
[Early Packet Discard (High-Low)] </d>	Early packet discard as calculated by CAC for the cross connect in the high-to-low direction .
[Cell Loss Ratio (High-Low)] </d>	Cell loss ratio in the high-to-low direction.
[Cumulative Cell Delay Variation (High-Low)] </d>	Cumulative cell delay variation in the high-to-low direction.
[Max Cell Transfer Delay (High-Low)] </d>	Maximum cell transfer delay in the high-to-low direction.
[Cumulative Cell Transfer Delay (High-Low)] </d>	Cumulative cell transfer delay in the high-to-low direction.
[Number of Cells Received in High-Low Direction] </d>	Number of cells received in the high-to-low direction.
[Number of Cells Dropped in High-Low Direction] </d>	Number of cells dropped in the high-to-low direction.
[Traffic Type (Low-High)] </d>	Traffic type in the low-to-high direction.
[Early Packet Discard (Low-High)] </d>	Early packet discard as calculated by CAC for the cross connect in the low-to-high direction.

Output Parameter	Description
[Cell Loss Ratio (Low-High)] </d>	Cell loss ratio in the low-to-high direction.
[Cumulative Cell Delay Variation (Low-High)] </d>	Cumulative cell delay variation in the low-to-high direction.
[Max Cell Transfer Delay (Low-High)] </d>	Maximum cell transfer delay in the low-to-high direction.
[Cumulative Cell Transfer Delay (Low-High)] </d>	Cumulative cell transfer delay in the low-to-high direction.
[Number of Cells Received in High-Low Direction] </d>	Number of cells received in the low-to-high direction.
[Number of Cells Dropped in High-Low Direction] </d>	Number of cells dropped in the low-to-high direction.

Descriptions

Operator	Parameters / Permissions	Description
activate pvc	[LowPortNumber] <lowportnumber> [LowVPCI] <lowvpci> [LowVCI] <lowvci> [HighPortID] <highportnumber> [LowVPCI] <lowvpci> [HighVCI] <highvci> Administrator	Activates the PVC specified. Administrative status is set to Up.
add pvc	[Port-1-Number] <port1number> [Port-1-VPCI] <port1vpci> [Port-1-VCI] <port1vci> [Port-2-Number] <port2number> [Port-2-VPCI] <port2vpci> [Port-2-VCI] <port2vci> [Port1-to-Port2TrafficDescriptorIndex] <port1toport2trafficdescriptorindex> [Port2-to-Port1TrafficDescriptorIndex] <port2toport1trafficdescriptorindex> Administrator	Adds the specified PVC.
clear pvc	Administrator	Deletes all PVCs.

Operator	Parameters / Permissions	Description
deactivate pvc	[LowPortNumber] <lowportnumber> [LowVPCI] <lowvpci> [LowVCI] <lowvci> [HighPortID] <highportnumber> [LowVPCI] <lowvpci> [HighVCI] <highvci> Administrator	Deactivates the specified PVC. Admin status is set to Down.
delete pvc	[LowPortNumber] <lowportnumber> [LowVPCI] <lowvpci> [LowVCI] <lowvci> [HighPortID] <highportnumber> [LowVPCI] <lowvpci> [HighVCI] <highvci> Administrator	Deletes the specified PVC.
show pvc	[PortNumber] <portnumber> [CrossConnectID] <crossconnectid> [CrossConnectSubID] <crossconnectsubid> Administrator	Displays the specified PVC.

Examples

```
switch_prompt # show pvc
```

```
PortNumber(ALL)           :
CrossConnectId(ALL)       :
CrossConnectSubId(ALL)    :
```

```
=====
Conn Conn |          Low          |          High          | Admin
Id  SubId | Port  VPCI  VCI  Type | Port  VPCI  VCI  Type | Status
=====
2   1     1A1    0   33   PTP  7A3    0   16   PTP  UP
6   1     1A2    0   37   PTP  7A3    0   18   PTP  UP
7   1     2B3    0   38   PTP  6A1    0    5   PTP  UP
=====
```

Total number of PVCs = 3

```
switch_prompt #
```

```
switch_prompt # add pvc
```

```
ConnType(PTP)              :
Port-1-Number()            : 3a3
Port-1-VPCI                : 0
Port-1-VCI()               : 33
Port-2-Number()            : 1b4
Port-2-VPCI()              : 0
Port-2-VCI()               : 18
Port1-to-Port2TrafficDescriptor : 1
Port1-to-Port2TrafficDescriptorIndex() : 1
```

```
switch_prompt #
```

```
switch_prompt # show pvc
```

```
PortNumber(ALL)           :
CrossConnectId(ALL)       :
CrossConnectSubId(ALL)    :
```

```
=====
Conn Conn |          Low          |          High          | Admin
Id  SubId | Port  VPCI  VCI  Type | Port  VPCI  VCI  Type | Status
=====
2   1     1A1    0   33   PTP  7A3    0   16   PTP  UP
6   1     1A2    0   37   PTP  7A3    0   18   PTP  UP
7   1     2B3    0   38   PTP  6A1    0    5   PTP  UP
8   1     1B4    0   18   PTP  3A3    0   33   PTP  DOWN
=====
```

Total number of PVCs = 4

```
switch_prompt #
```

```
switch_prompt # show pvc /d
```

```
PortNumber(ALL)           : 7a3
CrossConnectId(ALL)       : 2
CrossConnectSubId(ALL)    :
```

```
=====
Cross Connect Id          : 2
Cross Connect Sub Id      : 1
Low Port                  : 1A1
Low Vpci                  : 0
Low Vci                   : 33
Low - High Traffic Desc Index : 176
High - Low Traffic Desc Index : 176
Low Connection Type       : PTP
=====
```

High Port	: 7A3
High Vpci	: 0
High Vci	: 16
High Connection Type	: PTP
Admin Status	: UP
Low to High Operation status	: UP
High to Low Operation status	: UP
Port Status	: Operational
Creation Time	: 0:0:0
Traffic Type (High-Low)	: CBR
Early Packet Discard (High-Low)	: DISABLED
Cell Loss Ratio (High-Low)	: 0
Cumulative Cell Delay variation(High-Low)	: 0
Max Cell Transfer Delay(High-Low)	: 0
Cumulative Cell Transfer Delay(High-Low)	: 0
Number of Cells Received in High-Low Direction	: 1178891
Number of Cells Dropped in High-Low Direction	: 0
Traffic Type (Low-High)	: CBR
Early Packet Discard (Low-High)	: DISABLED
Cell Loss Ratio (Low-High)	: 0
Cumulative Cell Delay variation(Low-High)	: 0
Max Cell Transfer Delay(Low-High)	: 0
Cumulative Cell Transfer Delay(Low-High)	: 0
Number of Cells Received in Low-High Direction	: 1178900
Number of Cells Dropped in Low-High Direction	: 0

Total number of PVCs = 1

switch_prompt #

PVCById

Use PVCById to manage a PVC by its cross-connect ID.



Note The following applies to SmartSwitch 2500 family only: You can not delete or deactivate a PVC if an IP/ATM client is attached to the PVC through the IPATMPVC attribute.

Operators

activate, deactivate, delete

Parameters

This attribute has no output parameters.

Input Parameter	Description	Value/Field Size	Default
[CrossConnectId]	Cross-connect ID of the PVC (as assigned by switch software). Use the show pvc all command to get a list of cross-connect IDs. Each PTP PVC has a unique cross-connect ID. PMP PVCs might have the same cross-connect ID but different cross-connect sub IDs.	Positive integer	No default
[CrossConnectSubId]	Cross-connect sub-ID of the PVC (as assigned by switch software). Each PTP PVC and PMP PVC has a unique cross-connect sub-ID.	Positive integer	No default

Descriptions

Operator	Parameters / Permissions	Description
activate pvcbyid	[CrossConnectId] <crossconnid> [CrossConnectSubId] <crossconnectsubid> Administrator	Activates the PVC. Administrative status is Up.
deactivate pvcbyid	[CrossConnectId] <crossconnid> [CrossConnectSubId] <crossconnectsubid> Administrator	Deactivates the PVC. Administrative status is Down.

Operator	Parameters / Permissions	Description
delete pvcbyld	[CrossConnectId] <crossconnid> [CrossConnectSubId] <crossconnectsubid> Administrator	Deletes the PVC.

Examples

```

switch_prompt # activate pvcbyld
CrossConnId()           : 2
CrossConnSubId()        : 36
switch_prompt #

switch_prompt # deactivate pvcbyld
CrossConnId()           : 2
CrossConnSubId()        : 36
switch_prompt #

switch_prompt # delete pvcbyld
CrossConnectId()        : 1
CrossConnectSubId()     : 36
switch_prompt #

```

PVP

(SmartSwitch 6500 Only)

Use PVP to manage PVPs on the switch. You assign two physical ports on the switch as PVP endpoints.



Note When you add the PVP, the endpoints are called Port 1 and Port 2 (corresponding to order of entry). For subsequent action on the PVP (activate, deactivate, show, delete), the endpoints are called High Port and Low Port. High and Low are based on the lexical order of the port numbers. For example, port 2B1 is higher than port 1B1, port 2B2 is higher than port 2B1, and so on.

Operators

activate, add, clear, deactivate, delete, flush, show



Note You can hot-swap TSMs. Hot-swapping is replacing a module when the chassis is powered up. If you replace a TSM with another TSM of the same type (same I/O ports), existing configuration of port parameters is not affected. This includes parameters set using any of the following attributes: ATMRoute, CACServiceClassBw, IlmiConfig, NetPrefix, Port, PortConfig, PVC, PVP, ServiceRegistry, SigTimer, SigStatistics, SSCOPConfig, and SSCOPStatistics. If you replace a TSM with another TSM of a different type, existing configuration of port parameters is deleted. The deletion occurs when the new module is plugged into the chassis backplane.

Parameters

Input Parameter	Description	Value/Field Size	Default
[ConnType]	Connection type. Currently, only Point-to-Point (PTP) is supported.	PTP	PTP
[Port-1-Number]	Number of the first port assigned to the connection.	A1 to B4 (physical-2500 family), A1. <i>n</i> to B4. <i>n</i> (virtual-2500 family), 1A1 to 8B4 (physical-6500), 1A1. <i>n</i> to 8B4. <i>n</i> (virtual-6500)	No default
[Port-1-VPI]	VPI associated with Port 1.	Positive integer	No default

Input Parameter	Description	Value/Field Size	Default
[Port-2-Number]	Number of the second port assigned to the connection.	A1 to B4 (physical-2500 family), A1. <i>n</i> to B4. <i>n</i> (virtual-2500 family), 1A1 to 8B4 (physical-6500), 1A1. <i>n</i> to 8B4. <i>n</i> (virtual-6500)	No default
[Port-2-VPI]	VPI associated with Port 2.	Positive integer	No default
[Port1-to-Port2TrafficDescriptorIndex]	Index of the traffic descriptor for the direction of flow from Port 1 to Port 2. Create this traffic descriptor before creating the PVC.	Positive integer	No default
[Port2-to-Port1TrafficDescriptorIndex]	Index of the traffic descriptor for the direction of flow from Port 2 to Port 1. Create this traffic descriptor before creating the PVC.	Positive integer	No default
[LowPortNumber]	Number of the Low Port (based on lexical order).	A1 to B4 (physical-2500 family), A1. <i>n</i> to B4. <i>n</i> (virtual-2500 family), 1A1 to 8B4 (physical-6500), 1A1. <i>n</i> to 8B4. <i>n</i> (virtual-6500)	No default
[Low VPI]	VPI of the Low Port.	Positive integer	No default
[HighPortNumber]	Number of the High Port (based on lexical order).	A1 to B4 (physical-2500 family), A1. <i>n</i> to B4. <i>n</i> (virtual-2500 family), 1A1 to 8B4 (physical-6500), 1A1. <i>n</i> to 8B4. <i>n</i> (virtual-6500)	No default
[HighVPI]	VPI of the High Port.	Positive integer	No default
[PortNumber]	Port number on the switch.	A1 to B4 (physical-2500 family), A1. <i>n</i> to B4. <i>n</i> (virtual-2500 family), 1A1 to 8B4 (physical-6500), 1A1. <i>n</i> to 8B4. <i>n</i> (virtual-6500)	No default
[CrossConnectId]	Cross-connect ID of the PVP (as assigned by switch software). Use the <code>show pvc all</code> command to get a list of cross-connect IDs. Each PTP PVP has a unique cross-connect ID.	Positive integer	No default
[CrossConnectSubId]	Cross-connect sub-ID of the PVP (as assigned by switch software).	Positive integer	No default

In the Output Parameter table below, (</d>) indicates parameters that are available only through the `show pvp /d` (detailed) command.

Output Parameter	Description
[Conn Id]	Cross-connect ID of the PVP (as assigned by switch software). Each PTP PVP has a unique cross-connect ID. PMP PVPs might have the same cross-connect ID but different cross-connect sub IDs.
[Conn SubId]	Cross-connect sub-ID of the PVP. Each PTP PVP and PMP PVP has a unique cross-connect sub-ID.
[Low Port]	Number of the Low Port (based on lexical order).
[Low VPI]	VPI of the Low Port.
[Low Type]	Connection type from perspective of Low Port.
[High Port]	Number of the High Port (based on lexical order).
[High VPI]	VPI of the High Port.
[High Type]	Connection type from perspective of High Port.
[Admin Status]	Administrative status of the PVC. Possible values are: Up or Down.
[Low - High Traffic Decs Index (TX)] </d>	Index of the traffic descriptor in the direction of flow from Low Port to High Port.
[High - Low Traffic Decs Index (RX)] </d>	Index of of the traffic descriptor in the direction of flow from High Port to Low Port.
[Low to High Operation Status] </d>	Operational status of low-to-high connection. Possible values are: Up or Down.
[High to Low Operation Status] </d>	Operational status of high-to-low connection. Possible values are: Up or Down.
[Port Status] </d>	Operational status of port.
[Creation Time] </d>	Time the PVP was created (relative to the switch boot time).
[Traffic Type (High-Low)] </d>	Traffic type in the high-to-low direction.
[Early Packet Discard (High-Low)] </d>	Early packet discard as calculated by CAC for the cross connect in the high-to-low direction.

Output Parameter	Description
[Cell Loss Ratio (High-Low)] </d>	Cell loss ratio in the high-to-low direction.
[Cumulative Cell Delay Variation (High-Low)] </d>	Cumulative cell delay variation in the high-to-low direction.
[Max Cell Transfer Delay (High-Low)] </d>	Maximum cell transfer delay in the high-to-low direction.
[Cumulative Cell Transfer Delay (High-Low)] </d>	Cumulative cell transfer delay in the high-to-low direction.
[Number of Cells Received in High-Low Direction] </d>	Number of cells received in the high-to-low direction.
[Number of Cells Dropped in High-Low Direction] </d>	Number of cells dropped in the high-to-low direction.
[Traffic Type (Low-High)] </d>	Traffic type in the low-to-high direction.
[Early Packet Discard (Low-High)] </d>	Early packet discard as calculated by CAC for the cross connect in the low-to-high direction.
[Cell Loss Ratio (Low-High)] </d>	Cell loss ratio in the low-to-high direction.
[Cumulative Cell Delay Variation (Low-High)] </d>	Cumulative cell delay variation in the low-to-high direction.
[Max Cell Transfer Delay (Low-High)] </d>	Maximum cell transfer delay in the low-to-high direction.
[Cumulative Cell Transfer Delay (Low-High)] </d>	Cumulative cell transfer delay in the low-to-high direction.
[Number of Cells Received in High-Low Direction] </d>	Number of cells received in the low-to-high direction.
[Number of Cells Dropped in High-Low Direction] </d>	Number of cells dropped in the low-to-high direction.

Descriptions

Operator	Parameters / Permissions	Description
activate pvp	[LowPortNumber] <lowportnumber> [LowVPI] <lowvpci> [HighPortID] <highportnumber> [LowVPI] <lowvpci> Administrator	Activates the PVP specified. Administrative status is set to Up.
add pvp	[Port-1-Number] <port1number> [Port-1-VPI] <port1vpci> [Port-2-Number] <port2number> [Port-2-VPI] <port2vpci> [Port1-to-Port2TrafficDescriptorIndex] <port1toport2trafficdescriptorindex> [Port2-to-Port1TrafficDescriptorIndex] <port2toport1trafficdescriptorindex> Administrator	Adds the specified PVP.
clear pvp	Administrator	Deletes all PVPs.
deactivate pvp	[LowPortNumber] <lowportnumber> [LowVPI] <lowvpci> [HighPortID] <highportnumber> [LowVPI] <lowvpci> Administrator	Deactivates the specified PVP. Admin status is set to Down.
delete pvp	[LowPortNumber] <lowportnumber> [LowVPI] <lowvpci> [HighPortID] <highportnumber> [LowVPI] <lowvpci> Administrator	Deletes the specified PVP.
show pvp	[PortNumber] <portnumber> [CrossConnectID] <crossconnectid> [CrossConnectSubID] <crossconnectsubid> Administrator	Displays the specified PVP.

Examples

```
switch_prompt # add pvp
ConnType(PTP) :
Port-1-Number() : 1a2
Port-1-VPI() : 1
Port-2-Number() : 1a3
Port-2-VPI() : 1
Port1-to-Port2TrafficDescriptorIndex() : 2
Port2-to-Port1TrafficDescriptorIndex() : 7
```

```
switch_prompt # show pvp
PortNumber(ALL) :
CrossConnectId(ALL) :
CrossConnectSubId(ALL) :
```

```
=====
Conn Conn |      Low      |      High      | Admin
Id  SubId | Port  VPI  Type| Port  VPI  Type | Status
=====
2    36   1A1    0   PTP  1A2    0   PTP  DOWN
3    37   1A2    1   PTP  1A3    1   PTP   UP
=====
```

```
switch_prompt # show pvp /d
PortNumber(ALL) : 1a3
CrossConnectId(ALL) :
CrossConnectSubId(ALL) :
=====
Cross Connect Id : 3
Cross Connect Sub Id : 37
Low Port : 1A2
Low Vpi : 1
Low - High Traffic Desc Index : 2
High - Low Traffic Desc Index : 7
Low Connection Type : PTP
High Port : 1A3
High Vpi : 1
High Connection Type : PTP
Admin Status : UP
Low to High Operation status : UP
High to Low Operation status : UP
Port Status : Operational
Creation Time : 0:0:0
Traffic Type (High-Low) : CBR
Early Packet Discard (High-Low) : DISABLED
Cell Loss Ratio (High-Low) : 0
Cumulative Cell Delay variation(High-Low) : 0
Max Cell Transfer Delay(High-Low) : 0
Cumulative Cell Transfer Delay(High-Low) : 0
Number of Cells Received in High-Low Direction : 1178891
Number of Cells Dropped in High-Low Direction : 0
Traffic Type (Low-High) : CBR
Early Packet Discard (Low-High) : DISABLED
Cell Loss Ratio (Low-High) : 0
Cumulative Cell Delay variation(Low-High) : 0
Max Cell Transfer Delay(Low-High) : 0
Cumulative Cell Transfer Delay(Low-High) : 0
Number of Cells Received in Low-High Direction : 1178900
Number of Cells Dropped in Low-High Direction : 0

Total number of PVCs = 1
```

PVPById

(SmartSwitch 6500 Only)

Use PVPById to manage a PVP by its cross-connect ID.

Operators

activate, add, deactivate, delete, show

Parameters

This attribute has no output parameters.

Input Parameter	Description	Value/Field Size	Default
[CrossConnectId]	Cross-connect ID of the PVP (as assigned by switch software). Use the show pvp all command to get a list of cross-connect IDs.	Positive integer	No default
[CrossConnectSubId]	Cross-connect sub-ID of the PVP (as assigned by switch software).	Positive integer	No default

Descriptions

Operator	Parameters / Permissions	Description
activate pvcbyid	[CrossConnectId] <crossconnid> [CrossConnectSubId] <crossconnectsubid> Administrator	Activates the PVP. Administrative status is Up.
deactivate pvcbyid	[CrossConnectId] <crossconnid> [CrossConnectSubId] <crossconnectsubid> Administrator	Deactivates the PVP. Administrative status is Down.
delete pvcbyid	[CrossConnectId] <crossconnid> [CrossConnectSubId] <crossconnectsubid> Administrator	Deletes the PVP.

Examples

```
switch_prompt # activate pvpbyid  
CrossConnId() : 2  
CrossConnSubId() : 36
```

```
switch_prompt #
```

```
switch_prompt # deactivate pvpbyid  
CrossConnId() : 2  
CrossConnSubId() : 36
```

```
switch_prompt #
```

```
switch_prompt # delete pvpbyid  
CrossConnectId() : 1  
CrossConnectSubId() : 36
```

```
switch_prompt #
```

Reboot

Use Reboot to reboot the switch.

Operators

reboot

Parameters

This attribute has no parameters. Just enter **reboot** at the switch prompt and the switch reboots.

Descriptions

Operator	Parameters/Permissions	Description
reboot	[Reboot] < reboot > Administrator	Reboots the switch. Note that certain switch conditions are persistent on reboot. For example, if the LECS is stopped before the reboot, it will also be stopped after the switch comes back up. Also be aware that if you enter reboot from a telnet session, it breaks any connection you have with the switch. Press any key during the first seven seconds after entering this command as a way to avoid the full switch diagnostic session. By pressing any key and then typing go , the switch will conduct a basic diagnostic session.

Example

```
switch_prompt # reboot
```

```
Rebooting will temporarily disrupt all connections through the switch  
Are you sure this is what you want to do?
```

```
Confirm(y/n)?:y
```

```
switch_prompt #
```

RedundancyConfigBackup

(SmartSwitch 6500 Only)

Use RedundancyConfigBackup to copy switch configuration to the slave TSM/CPU backup file specified by the RedundancyInfo attribute. If you use the same backup file for the slave and master TSM/CPU modules, you can use the `backup switch` command to copy the current switch configuration to the slave backup file. If the name or the location of the files is different, however, you must use `execute redundancyconfigbackup` to synchronize the current switch configuration with the slave backup file.



Note If automatic TSM/CPU redundancy is activated and operational, the slave module is synchronized with current switch configuration automatically (there is no need to administer a slave backup file).

Operators

`execute`

Parameters

This attribute has no parameters. Just enter `execute redundancyconfigbackup` at the switch prompt.

Descriptions

Operator	Parameters/Permissions	Description
<code>execute redundancyconfigbackup</code>	Administrator	Backs up the slave TSM/CPU configuration file.

Examples

```
switch_prompt # execute redundancyconfigbackup
```

```
Backup successful
```

```
switch_prompt #
```

RedundancyInfo

(SmartSwitch 6500 Only)

Use RedundancyInfo to set or display the location of the backup configuration file for the slave TSM/CPU module. Typically, you would use the same backup file for the slave and master modules. If you do, you can use the **backup switch** command to copy the current switch configuration to the slave backup file. If the name or location of the files is different, however, you must use **execute redundancyconfigbackup** to copy the current switch configuration to the slave backup file.



Note

If automatic TSM/CPU redundancy is activated and operational, the slave module is synchronized with current switch configuration automatically (there is no need to administer a slave backup file).

Operators

modify, show

Parameters

Input Parameter	Description	Value/Field Size	Default
[UpdateConfig]	Sets/unsets a flag to update configuration.	Y (Yes), N (No)	N
[HostIP]	IP address of server on which backup configuration file resides.	Dot decimal/ 7-15 characters	Last IP address used
[PathFileName]	Full pathname of backup file.	256 characters	Last pathname used

Output Parameter	Description
[UpdateConfig]	Sets/unsets a flag to update configuration.
[HostIP]	IP address of server on which backup configuration file resides.
[PathFileName]	Full pathname of backup file.

Descriptions

Operator	Parameters/Permissions	Description
set redundancyinfo	[UpdateConfig] <updateconfig> [HostIP] <hostip> [PathFileName] <pathfilename> Administrator	Sets location of the slave TSM/CPU configuration file. Whatever file you choose as the slave TSM/CPU configuration file, the file must exist on the TFTP server and must be located within the /tftpboot directory.
show redundancyinfo	Administrator	Displays the location of the slave TSM/CPU configuration file.

Examples

```
switch_prompt # set redundancyinfo
UpdateConfig(N)                :
HostIP(206.61.237.40)          : 206.61.237.16
PathFileName(backup/smart6500.ztr) : backup/slave.ztr

switch_prompt #

switch_prompt # show redundancyinfo
UpdateConfig                : N
HostIP                      : 206.61.237.16
PathFileName                : backup/slave.ztr

switch_prompt #
```

RedundancyOn

(SmartSwitch 6500 Only)

Use RedundancyOn to activate support for automatic TSM/CPU redundancy. If automatic TSM/CPU redundancy is activated, the TSM/CPU slave module monitors activity of the TSM/CPU master module. Every second, the master module sends a heartbeat signal to the slave. If the slave does not receive five consecutive heartbeats, it assumes the master is not active and reboots the switch. If the master still is not alive after reboot, automatic CPU switchover occurs (the slave module becomes the master module and vice versa). During the period the slave module monitors the master module, the configuration of the slave module is automatically kept current with configuration of the master module.

**Note**

To deactivate support for automatic TSM/CPU redundancy, use the RedundancyOff attribute. If you choose to deactivate automatic TSM/CPU redundancy, you can use manual TSM/CPU redundancy with the CPUswitchover, RedundancyInfo, and RedundancyConfigBackup attributes.

Operators

modify

Parameters

This attribute has no input or out parameters. Just type **modify redundancyon** at the switch prompt.

Descriptions

Operator	Parameters/Permissions	Description
modify redundancyon	Administrator	Turns ON support for automatic TSM/CPU redundancy.

Examples

```
switch_prompt # modify redundancyon  
NOTICE - 'tConsole' Wait for synchronous message timed out  
Redundancy Is Enabled
```

```
switch_prompt #
```

RedundancyOff

(SmartSwitch 6500 Only)

Use RedundancyOff to deactivate support for automatic TSM/CPU redundancy. For a description of automatic TSM/CPU redundancy, refer to the RedundancyOn attribute.



Note If you choose to deactivate automatic TSM/CPU redundancy, you can use manual TSM/CPU redundancy with the CPUswitchover, RedundancyInfo, and RedundancyConfigBackup attributes.

Operators

modify

Parameters

This attribute has no input or out parameters. Just type **modify redundancyoff** at the switch prompt.

Descriptions

Operator	Parameters/Permissions	Description
modify redundancyoff	Administrator	Turns OFF support for automatic TSM/CPU redundancy.

Examples

```
switch_prompt # modify redundancyoff
NOTICE - 'tConsole' Wait for synchronous message timed out
Redundancy Is Disabled

switch_prompt #
```

RedundancyStatus

(SmartSwitch 6500 Only)

Use RedundancyStatus to display status of automatic TSM/CPU redundancy and CSM redundancy on the switch.

Operators

show

Parameters

This attribute has no input parameters. Just type **show redundancystatus** at the switch prompt.

Output Parameter	Description
[Admin Status]	Administrative status of automatic TSM/CPU redundancy (whether or not automatic TSM/CPU redundancy has been set ON with the RedundancyOn attribute). Possible values are: Enabled or Disabled. As indicated in the description for the [Oper Status] parameter, several conditions must be met before automatic TSM/CPU redundancy is operational, regardless of whether it has been set ON.
[Oper Status]	Operational status of automatic TSM/CPU redundancy. Possible values are: Redundant or Not Redundant. Operational status is Redundant if all of the following are true: <ul style="list-style-type: none"> • A slave TSM/CPU is present. • Redundancy is set to ON, using the RedundancyOn attribute. • Slave and master modules run the same version of boot load and switch operating firmware.



Note

Some early versions of TSM/CPU might support automatic mirroring of slave and master configurations (configuration of the slave module is automatically kept current with the master module) but not CPU switchover. In this case, operational status is Redundant, but you get the message “TSM/CPU does not support automatic CPU switchover.”

[Active CPU]	Indicates slot location of master CPU.
[Standby CPU]	Indicates whether a slave TSM/CPU is present or absent. If the module is present, slot location is provided.
[Active CSM]	Indicates slot location of master CSM.
[Standby CSM]	Indicates whether a slave CSM is present or absent. If the module is present, slot location is provided.

Descriptions

Operator	Parameters/Permissions	Description
<code>show redundancystatus</code>	Administrator	Shows redundancy status on the switch.

Examples

```
switch_prompt # show redundancystatus
```

```
Admin Status      : Redundancy Enabled
Oper Status       : System Is Redundant
Active CPU        : Present In Slot #7
Standby CPU       : Present In Slot #8
Active CSM        : Present In Slot #9
Standby CSM       : Present In Slot #10
```

Route

Use Route to administer IP route management to an ATM client through an Ethernet network. It allows network management software to communicate across a network of switches.

Operators

add, delete, show

Parameters

Input Parameter	Description	Value/Field Size	Default
[DestNetIP]	IP address of a remote network.	Dot decimal/ 7-15 characters	No default
[GatewayIP]	IP address for a gateway to the remote network.	Dot decimal/ 7-15 characters	No default

Output Parameter	Description
[Destination]	IP address of a remote network. (Same as the [DestNetIP] input parameter.)
[Gateway]	IP address for a gateway to the remote network. (Same as the [GatewayIP] input parameter.)
[Flags]	The flags field is a bitmask of different options: <ul style="list-style-type: none"> • 0x1 – Route is usable (“up”) • 0x2 – Destination address is a gateway • 0x4 – Host-specific routing entry • 0x10 – Created dynamically by ICMP redirect • 0x20 – Modified dynamically by ICMP redirect
[Refcnt]	Internal/debugging information.
[Use]	Number of times this route has been used to send a packet.
[Interface]	Interface used for forwarding packets on this route.

Descriptions

Operator	Parameters/Permissions	Description
add route	[DestNetIP] <destnetip> [GatewayIP] <gatewayip> Administrator	Creates an IP route to an ATM client when it is not directly connected to the NMS (network management system). You must assign both the destination IP address and the gateway IP address to reach the ATM client, and these addresses must already exist.
delete route	[DestNetIP] <destnetip> [GatewayIP] <gatewayip> Administrator	Removes an IP route from the switch configuration when it is not directly connected to the NMS.
show route	All	Displays IP routes used by the switch. The flag numbers shown in the flags column relate to the hexadecimal figures listed in the Output Parameter table above. Whatever number is shown defines what flags are active. For example, 1 equals flag 0x1; 5 equals flag 0x1 + flag 0x4; 7 equals flag 0x1 + flag 0x2 + flag 0x4 and so on.

Examples

```

switch_prompt # add route
DestNetIP()           : 204.95.77.187
GatewayIP()           : 204.95.77.186
switch_prompt #

switch_prompt # show route

ROUTE NET TABLE
destination    gateway      flags  Refcnt  Use      Interface
-----
90.1.1.0       90.1.1.186    1      0      6508     zn1
204.95.77.0    204.95.77.186 1      3      6312     ei0
-----
ROUTE HOST TABLE
destination    gateway      flags  Refcnt  Use      Interface
-----
127.0.0.1      127.0.0.1    5      0      0        lo0
204.95.77.187  204.95.77.186 5      0      0        ei0
-----

switch_prompt #

switch_prompt # delete route
DestNetIP()           : 204.95.77.187
GatewayIP()           : 204.95.77.186
switch_prompt #

```

Rows

Use Rows to alter the number of rows per page on the console display.

Operators

modify

Parameters

This attribute has no output parameters.

Input Parameter	Description	Value/Field Size	Default
[Rows]	Number of rows per page (0 turns off pagination).	0 to 999	18

Descriptions

Operator	Parameters/Permissions	Description
modify rows	[rows] <number> Administrator	Sets the number of rows per page on the console display (by telling the switch how many lines your console supports). If you do not want screen breaks in the output, set the number of rows to "0."

Examples

```
switch_prompt # modify rows
Rows(18): 25
There are now 25 rows per page
switch_prompt #
```


SARStat

Use SARStat (segmentation and reassembly statistics) to view statistics from the SAR on the CPU port. This is useful for debugging hardware problems.

Operator

show

Parameters

This attribute has no input parameters. Just enter **show sarstat** at the switch prompt.

Output Parameter	Description
[Rcv Pkts]	Number of packets received since last up-time or clear.
[RCV Byts]	Number of bytes received since last up-time or clear.
[Raw Cell]	Number of raw cells received.
[Buf UF]	Number of underflow buffers received since last up-time or clear.
[FIFO OR]	Number of first in, first out overruns received.
[Max Len]	Maximum length of packet.
[Len Err]	Number of packet-length errors received.
[Crc Err]	Number of packet-length errors received.
[U Abrts]	Number of user aborts received since last up-time or clear.
[T1 Err]	Number of T1 errors received since last up-time or clear.
[Chnl DVT]	Number of channel DVT (delay variation tolerance) indicators since last up-time or clear.
[spur Int]	Number of spurious indicators since last up-time or clear.
[Ttl Err]	Total errors received since last up-time or clear.
[ISR Int]	Total interrupts received.
[RQU Int]	Receive queue underrun indicator since last up-time or clear.
[RQA Int]	Receive queue alert indicator since last up-time or clear.

Output Parameter	Description
[MM Int]	Mailbox modified indicator.
[MF Int]	Mailbox full indicator.
[SBE Int]	System bus error indicator since last up-time or clear.
[SPE Int]	System parity error indicator since last up-time or clear.
[CPE Int]	Number of control monitor parity error indicators.
[PI Int]	Physical interface indicator.
[RD Int]	Receive deactivated indicator since last up-time or clear.
[RCR Int]	Raw cell received indicator.
[Pkts Qd]	Number of packets queued.
[Pkts Cmp]	Number of packets completed.
[Byts Cmp]	Number of bytes completed since last up-time or clear.
[Pkts Drp]	Number of packets dropped.

Descriptions

Operator	Parameters/Permissions	Description
<code>show</code> <code>sarstat</code>	Administrator	Displays all levels of statistics for the SAR. AAL (ATM adaptation layer) commands act on the SAR of VCs (virtual circuits) and VC statistics.

Examples

```
switch_prompt # show sarstat
```

Receive Statistics

Rcv Pkts:	6	Rcv Byts:	648	Raw Cell:	0	Buf UF :	0
FIFO OR :	0	Max Len :	0	Len Err :	0	Crc Err :	7
U Abrts :	0	Tl Err :	0	Chnl DVT:	26	spur Int:	0
Ttal Err:	7	ISR Int:	39	RQU Int:	0	RQA Int:	0
MM Int:	39	MF Int:	0	SBE Int:	0	SPE Int:	0
CPE Int:	0	PI Int:	0	RD Int:	0	RCR Int:	0

Transmit Statistics

Pkts Qd :	20	Pkts Cmp:	20	Byts Cmp:	1712	Pkts Drp:	0
-----------	----	-----------	----	-----------	------	-----------	---

```
switch_prompt #
```

ServiceRegistry

Use ServiceRegistry to manage entries in the service registry MIB.



Note The following applies to SmartSwitch 6500 only: You can hot-swap TSMs. Hot-swapping is replacing a module when the chassis is powered up. If you replace a TSM with another TSM of the same type (same I/O ports), existing configuration of port parameters is not affected. This includes parameters set using any of the following attributes: ATMRoute, CACServiceClassBw, IlmiConfig, NetPrefix, Port, PortConfig, PVC, PVP, ServiceRegistry, SigTimer, SigStatistics, SSCOPConfig, and SSCOPStatistics. If you replace a TSM with another TSM of a different type, existing configuration of port parameters is deleted. The deletion occurs when the new module is plugged into the chassis backplane.

Operators

add, delete, show

Parameters

Input Parameter	Description	Value/Field Size	Default
[PortNumber]	Port number on the switch.	A1 to B4 (2500 family), 1A1 to 8B4 (6500), (virtual-6500)	All
[ServiceType]	Type of service (ANS or LECS)	ANS, LECS	LECS
[AddressIndex]	Index identifying two services registered for the same port and having the same service type.	Positive integer	No default
[AtmAddress]	ATM address of the server.		No default



Note The following applies to SmartSwitch 6500 only: If you hot-swap a TSM with a TSM of a different type (different I/O ports), service registry information associated with ports on the original TSM is deleted. Before you insert a replacement TSM, you can display existing service registry information using the **show** operator with the **/o** option (for example: **show serviceregistry /o**).

Output Parameter	Description
[Port]	Port number on the switch. (Same as the [PortNumber] input parameter.)
[Type]	Type of service. Possible values are: ANS or LECS.
[Index]	Index identifying two services registered for the same port and having the same service type. (Same as the [AddressIndex] input parameter.)
[AtmAddress]	ATM address of the server.

Descriptions

Operator	Parameters / Permissions	Description
add serviceregistry	[PortNumber] <portnumber> [ServiceType] <servicetype> [AddressIndex] <addressindex> [AtmAddress] <atmaddress> Administrator	Adds a service to service registry MIB.
delete serviceregistry	[PortNumber] <portnumber> [ServiceType] <servicetype> [AddressIndex] <addressindex> Administrator	Deletes a service from service registry MIB.
show serviceregistry	[PortNumber] <portnumber> Administrator	Displays all entries in the service registry MIB.

Examples

```
switch_prompt # add serviceregistry
PortNumber(ALL)      : A1
ServiceType(LECS)    :
AddressIndex()       : 1
AtmAddress()         : 39:00:00:00:00:00:00:00:00:00:14:1B:00:0020:D4:14:1C:00:01
switch_prompt #
```

```
switch_prompt # delete serviceregistry
PortNumber(ALL)      :
ServiceType(LECS)    :
AddressIndex()       : 3
switch_prompt #
```

```
switch_prompt # show serviceregistry
PortNumber(ALL)      :
```

Port	Type	Index	AtmAddress
A1	LECS	1	39:00:00:00:00:00:00:00:00:00:14:1B:00:0020:D4:14:1C:00:01
A2	LECS	2	39:00:00:00:00:00:00:00:00:00:14:1B:00:0020:D4:14:1A:00:01
ALL	LECS	1	39:00:00:00:00:00:00:00:00:00:14:1B:00:0020:D4:14:1B:00:01

```
switch_prompt #
```

Shutdown

Use Shutdown to shut down the switch to a state where it can be powered off. Shutdown stops all logging and synchronizes the file system. You must enter **shutdown** before turning off the switch.

Operator

shutdown

Parameters

This attribute has no parameters. Just enter **shutdown** at the switch prompt.

Descriptions

Operator	Parameters/Permissions	Descriptions
shutdown	Administrator	After issuing this command, you are prompted for confirmation (reply y to confirm). After the switch is shutdown, you can safely power off or reset the switch. Be sure not to confuse this attribute with Exit. Use exit simply to end a console session.

Example

```
switch_prompt # shutdown
Confirm(y/n)?: y
switch_prompt #
You can switch off the system now
```

SigStatistics

Use SigStatistics to display signaling statistics of a port.



Note The following applies to SmartSwitch 6500 only: You can hot-swap TSMs. Hot-swapping is replacing a module when the chassis is powered up. If you replace a TSM with another TSM of the same type (same I/O ports), existing configuration of port parameters is not affected. This includes parameters set using any of the following attributes: ATMRoute, CACServiceClassBw, IlmiConfig, NetPrefix, Port, PortConfig, PVC, PVP, ServiceRegistry, SigTimer, SigStatistics, SSCOPConfig, and SSCOPStatistics. If you replace a TSM with another TSM of a different type, existing configuration of port parameters is deleted. The deletion occurs when the new module is plugged into the chassis backplane.

Operator

show

Parameters

Input Parameter	Description	Value/Field Size	Default
[PortNumber]	Port number on the switch. You can specify a physical or virtual port.	A1 to B4 (physical-2500 family), A1. <i>n</i> to B4. <i>n</i> (virtual-2500 family), 1A1 to 8B4 (physical-6500), 1A1. <i>n</i> to 8B4. <i>n</i> (virtual-6500), or All	All

Output Parameter	Description
[Port#]	Port number on the switch. (Same as the [PortNumber] input parameter.)
[Detect Setup Attempts]	Number of set-up messages received.
[Emit Setup Attempts]	Number of set-up messages transmitted.
[Detect Unavailable Routes]	Number of SVC calls rejected by this switch because of unavailable IISP or UNI routes generated on other switches.
[Emit Unavailable Routes]	Number of SVC calls rejected by this switch because of unavailable IISP or UNI routes generated on this switch.

Output Parameter	Description
[Detect Unavailable Resources]	Number of calls rejected because of unavailable resources on other switches.
[Emit Unavailable Resources]	Number of calls rejected because of unavailable resources on this switch.
[Detect Called Party Events]	Number of calls other switches reject (such as incorrect or invalid called party number or called party busy signal).
[Emit Called Party Events]	Number of calls this switch rejected (such as incorrect or invalid called party number or called party busy signal).
[Detect Signaling Message Errors]	Number of signaling message errors for other switches (such as invalid information elements (IE) or missing mandatory elements in the IEs).
[Emit Signaling Message Errors]	Number of signaling message errors for this switch (such as invalid information elements (IE) or missing mandatory elements in the IEs).
[Detect Timer Expirations]	Number of calls terminated by other switches due to timer expirations.
[Emit Timer Expirations]	Number of calls terminated by this switch due to timer expirations.
[Detect Restarts]	Number of requests (by the user) on other switches to release all resources associated with the circuit controlled by signaling.
[Emit Restarts]	Number of requests (by the user) on this switch to release all resources associated with the circuit controlled by signaling.
[In Call Establishments]	Number of successful incoming call set-ups.
[Out Call Establishments]	Number of successful outgoing call set-ups.

Description

Operator	Parameters / Permissions	Description
<code>show sigstatistics</code>	[PortNumber] <portnumber> All	Displays signaling statistics.

Examples

switch_prompt # **show sigstatistics**

Executing this command : show SigStatistics

PortNumber(ALL) : **1a1**

=====

Signalling Statistics

=====

Port#	:	1A1
Detect setup attempts	:	0
Emitt Setup Attempts	:	358
Detect Unavailable Routes	:	0
Emitt Unavailable Routes	:	0
Detect Unavailable Resources	:	0
Emitt Unavailable Resources	:	0
Detect Calledparty Events	:	6
Emitt Calledparty Events	:	206
Detect Signalling Message Errors	:	0
Emitt Signalling Message Errors	:	0
Detect Callingparty Events	:	0
Emitt Callingparty Events	:	0
Detect Timer Expirations	:	0
Emitt Timer Expirations	:	0
Detect Restarts	:	1
Emitt Restarts	:	0
In Call Establishments	:	0
Out Call Establishments	:	10

switch_prompt #

SigTimer

Use SigTimer to set or display signaling timer values for a port



Note The following applies to SmartSwitch 6500 only: You can hot-swap TSMs. Hot-swapping is replacing a module when the chassis is powered up. If you replace a TSM with another TSM of the same type (same I/O ports), existing configuration of port parameters is not affected. This includes parameters set using any of the following attributes: ATMRoute, CACServiceClassBw, IlmiConfig, NetPrefix, Port, PortConfig, PVC, PVP, ServiceRegistry, SigTimer, SigStatistics, SSCOPConfig, and SSCOPStatistics. If you replace a TSM with another TSM of a different type, existing configuration of port parameters is deleted. The deletion occurs when the new module is plugged into the chassis backplane.

Operators

modify, show

Parameters

Input Parameter	Description	Value/Field Size	Default
[PortNumber]	Port number on the switch. You can specify a physical or virtual port.	A1 to B4 (physical-2500 family), A1. <i>n</i> to B4. <i>n</i> (virtual-2500 family), 1A1 to 8B4 (physical-6500), 1A1. <i>n</i> to 8B4. <i>n</i> (virtual-6500), or All	All
[TimerId]	Timer name.	Possible values are: T301,T303, T306,T308, T309, T310, T313, T316, T317, T322, T331, T333, T397,T398, T399.	T303
[Interval]	Timer value in milliseconds.	Zero or positive integer	0
[Retries]	Number of times the timer has to be restarted.	Zero or positive integer	1

Output Parameter	Description
[phy_port_id]	Port number on the switch. (Same as the [PortNumber] input parameter.)
[duration]	Timer value in milliseconds. (Same as the [Interval] input parameter.)
[retries]	Number of times the timer has to be restarted. (Same as the [Retries] input parameter.)

Descriptions

Operator	Parameters / Permissions	Description
modify sigtimer	[PortNumber] <portnumber> [TimerID] <timerid> [Interval] <interval> [Retries] <retries> Administrator	Sets signaling timer values.
show sigtimer	All	Displays signaling timer values.

Examples

```
switch_prompt # show sigtimer
```

```
PortNumber( )           : 1a1
```

```
=====
```

```

: All timer values in Milliseconds
phy_port_id           : 1A1
T301 duration         : 180000
T303 duration         : 4000
T303 retries          : 1
T306 duration         : 30000
T308 duration         : 30000
T308 retries          : 1
T309 duration         : 10000
T310 duration         : 10000
T313 duration         : 30000
T316 duration         : 120000
T316 retries          : 1
T317 duration         : 60000
T322 duration         : 4000
T322 retries          : 1
T331 duration         : 60000
T331 retries          : 1
T333 duration         : 10000
T397 duration         : 180000
T398 duration         : 4000
T399 duration         : 14000
```

```
switch_prompt #
```

SlotConfig

Use SlotConfig to display configuration of slots in the switch chassis (to see which slots are occupied by TSM or CSM modules). You also can get specific information about each module.

Operators

show

Parameters

Input Parameter	Description	Value/Field Size	Default
[Slot]	Slot number in the switch chassis.	1-10 or All	All

Output Parameter	Description
[Slot ID]	Slot number in the switch chassis. (Same as the [Slot] input parameter.)
[Board]	Type of module in the slot (TSM or CSM).
[IO Modules]	Number of IO modules (applies to TSM modules only).

If you give a specific [Slot], the following additional fields are displayed.

[Board ID]	ID number of the board.
[Board Rev]	Revision number of the board.

Descriptions

Operator	Parameters/Permissions	Description
show slotconfig	[Slot] <slot> Administrator	Displays configuration of slots in the switch chassis.

Examples

```
switch_prompt # show slotconfig
```

```
Slot(ALL) :
```

```
Slot ID      Board      IO Modules
```

```
=====
```

```
7           TSM        2
```

```
9           CSM        NA
```

```
switch_prompt # show slotconfig
```

```
Slot(ALL) : 7
```

```
Slot 7
```

```
=====
```

```
Slot Number: : 7
```

```
Installed Board: : TSM
```

```
Board ID : 0
```

```
Board Rev : 1
```

```
IO Boards Installed : 2
```

```
IO Board : NONE
```

```
IO Board : NONE
```

```
switch_prompt #
```

Spvc

Use Spvc to add, delete, or show soft PVCs (SPVCs) on the switch. An SPVC connects this switch (the source switch) to a switch across the ATM network (the target switch).



Note Before adding an SPVC at this switch, you must configure the target address at the target switch.

Operators

add, delete, show

Parameters

Input Parameter	Description	Value/Field Size	Default
[PortNumber]	Port number on the switch. (Physical port used as SPVC source port.)	A1 to B4 (2500 family), 1A1 to 8B4 (6500), or All	All
[SourceVpi]	VPI allocated to the SPVC source port.		
[SourceVci]	VCI allocated to the SPVC source port.		
[DestinationSelectType]	Specifies whether or not the destination VPI/VCI input at the source switch must be used as the target port (at the target switch). If you specify Required, the VPI/VCI specified in the [DestinationVpi] and [DestinationVci] input parameters must be used as the target port. If you specify Any, the target switch can use any VPI/VCI as the target port.	Required, Any	Required
[DestinationVpi]	VPI allocated to the target port.		
[DestinationVci]	VCI allocated to the target port.		
[TargetAddress]	Destination (target) address to which the SPVC should attempt to connect.	20-byte address	
[ForwardTrafficDescriptorIndex]	Index of the forward (source to target) traffic descriptor.		

Input Parameter	Description	Value/Field Size	Default
[BackwardTrafficDescriptor Index]	Index of the backward (target to source) traffic descriptor.		
[RetryInterval]	Time interval between SPVC retries.	0-3600000 milliseconds	
[RetryLimit]	Maximum number of SPVC retries.	0-65535	
[RetryThreshold]	Number of consecutive failed setup attempts for a particular SPVC before the SPVCCallFailures object is incremented.	0-65525	

In the Output Parameter table below, (</d>) appears next to parameters that are available only through the **show spvc /a** (detailed) command

Output Parameter	Description
[Port]	Physical port number on the switch. (Same as the [PortNumber] input parameter.)
[Src VPI]	VPI allocated to the SPVC source port. (Same as the [SourceVpi] input parameter.)
[Src VCI]	VCI allocated to the SPVC source port. (Same as the [SourceVci] input parameter.)
[Operation Status]	Indicates operational status of the SPVC. Possible values are: Connected, Establishment in Progress, Retries Exhausted, and Other.
[Total Number of SPVCs]	Indicates the total number of SPVCs on the switch.
[Target Address]	Destination (target) address to which the SPVC attempts to connect.
[Target VPI]	VPI allocated to the target port. (Same as the [DestinationVpi] input parameter.)
[Target VCI]	VCI allocated to the target port. (Same as the [DestinationVci] input parameter.)
[Last Release Cause]	Code that describes cause of SPVC failure (why SPVC has failed to connect) (see Table 2-10).
[Retry Interval]	Time interval between SPVC retries.
[Retry Timer]	Value of the retry timer.

Output Parameter	Description
[Retry Threshold]	Number of consecutive failed setup attempts for a particular SPVC before the SPVCCallFailures object is incremented.
[Retry Failures]	Number of failed retry attempts.
[Retry Limit]	Maximum number of SPVC retries.
[Traffic Type (Forward)]	Type of traffic in the forward (source to target) direction.
[Traffic Type (Backward)]	Type of traffic in the backward (target to source) direction.
[Forward Traffic Descriptor Index]	Index of the forward (source to target) traffic descriptor.
[Backward Traffic Descriptor Index]	Index of the backward (target to source) traffic descriptor.

Descriptions

Operator	Parameters/Permissions	Description
add spvc	[PortNumber] <portnumber> [SourceVPI] <sourcevpi> [SourceVCI] <sourcevci> [DestinationSelectType] <destinationselecttype> [DestinationVPI] <destinationvpi> [DestinationVCI] <destinationvci> [TargetAddress] <targetaddress> [ForwardTrafficDescriptorIndex] <forwardtrafficdescriptorindex> [BackwardTrafficDescriptorIndex] <backwardtrafficdescriptorindex> [RetryInterval] <retryinterval> [RetryLimit] <retrylimit> [RetryThreshold] <retrythreshold> Administrator	Adds an SPVC.
delete spvc	[PortNumber] <portnumber> [SourceVPI] <sourcevpi> [SourceVCI] <sourcevci> Administrator	Deletes an SPVC.
show spvc	[PortNumber] <portnumber> [SourceVPI] <sourcevpi> [SourceVCI] <sourcevci> Administrator	Displays SPVCs.

Table 2-10 SPVC Failure Cause Codes

Code	Description
1	Unallocated (unassigned) number.
2	No route to specified transit network.
3	No route to destination.
16	Normal call clearing.
17	User busy.
18	No user responding.
21	Call rejected.
22	Number changed.
23	User rejects all calls with calling line identification (CLID) restriction.
27	Destination out-of-order.
28	Invalid number format (address incomplete).
30	Response to STATUS ENQUIRY.
31	Normal, unspecified.
34	Requested called party soft PVCC not available.
35	Requested VPI/VCI not available.
36	VPCI/VCI assignment failure.
37	User cell rate not available.
38	Network out of order.
41	Temporary failure.
43	Access information discarded.
45	No VPCI/VCI available.
47	Resource unavailable, unspecified.
49	Quality of Service unavailable.
53	Call cleared due to change in PGL
57	Bearer capability not authorized.
58	Bearer capability not presently available.
63	Service or option not available, unspecified.
65	Bearer capability not implemented.
73	Unsupported combination of traffic parameters.
78	AAL parameters cannot be supported.

Table 2-10 SPVC Failure Cause Codes

Code	Description
81	Invalid call reference value.
82	Identified channel does not exist.
88	Incompatible destination.
89	Invalid endpoint reference.
91	Invalid transit network selection.
92	Too many pending add party requests.
96	Mandatory information element is missing.
97	Message type non-existent or not implemented.
99	Information element non-existent or not implemented.
100	Invalid information element contents.
101	Message not compatible with call state.
102	Recovery on timer expiry.
104	Incorrect message length.
111	Protocol error, unspecified.


```

switch_prompt # delete spvc
PortNumber( )           : 5a2
SourceVpi(0)            : 0
SourceVci(32)           : 100

```

Deleted SPVC successfully.

```
switch_prompt #
```

```

switch_prompt # show spvc
PortNumber(ALL)       :
SourceVpi(0)          :
SourceVci(32)         :

```

```

=====
Port   Src VPI   Src VCI   Operation Status
=====

```

Total number of SPVCs = 0

```
switch_prompt #
```

SpvcAddress

Use SPVCAddress to configure a target address on the switch. The target address allows the switch to act as the target switch in an SPVC or SPVP connection. The SPVC or SPVP is established (added) at the source switch.

Operators

add, delete, show

Parameters

Input Parameter	Description	Value/Field Size	Default
[PortNumber]	Port number on the switch. (Number of the physical port used as the SPVC or SPVP target port.)	A1 to B4 (2500 family), 1A1 to 8B4 (6500), or A1	All
[AtmAddress]	Destination address to which the SPVC or SPVP should attempt to connect (the target address).	20-byte address	

Output Parameter	Description
[Port]	Physical port number on the switch. (Same as the [PortNumber] input parameter.)
[SPVC Target Address]	Destination address to which the SPVC or SPVP should attempt to connect. (Same as the [AtmAddress] input parameter.)
[Total number of SPVC Addresses]	Number of SPVC or SPVP addresses.

Descriptions

Operator	Parameters/Permissions	Description
add spvcaddress	[PortNumber] <portnumber> [AtmAddress] <atmaddress> Administrator	Adds a target address.
delete spvcaddress	[PortNumber] <portnumber> [AtmAddress] <atmaddress> Administrator	Deletes a target address.

Operator	Parameters/Permissions	Description
show spvcaddress	[PortNumber] <portnumber> [AtmAddress] <atmaddress> Administrator	Displays target addresses.

Examples

switch_prompt # **show spvcaddress**

Executing this command : show SpvcAddress

PortNumber(ALL) :
TargetAddress() :

```

Port          SPVC Target Address
=====
A1            39:00:00:00:00:00:00:00:00:00:11:22:33:11:22:33:44:55:66:77
A2            11:22:33:44:55:55:22:11

```

Total number of SPVC Addresses = 2

switch_prompt # **add spvcaddress**

Executing this command : add SpvcAddress

PortNumber() : **a2**
AtmAddress() : **39:00:00:11:22:33:44:55**

Added SPVC Address successfully.

switch_prompt # **delete spvcaddress**

Executing this command : delete SpvcAddress

PortNumber() : **a1**
AtmAddress() : **39:00:00:00:00:00:00:00:00:00:11:22:33:44:55:66:77:88:99:11**

Deleted SPVC Address successfully.

SpvcBase

Use SpvcBase to display status information about SPVCs and SPVPs on the switch.

Operators

show

Parameters

This attribute has no input parameters. Just type **spvcbase** at the switch prompt.

Output Parameter	Description
[Currently Failing SPVC]	The current number of SPVCs which have not yet connected to the target.
[Currently Failing SPVP]	The current number of SPVPs which have not yet connected to the target.
[SPVC Call Failures]	The number of times a series of call attempts has failed to establish an SPVCC or SPVPC. The number of call attempts is determined by the RetryThreshold.
[Notify Interval]	The minimum interval (in milliseconds) between the sending of SPVC call failure trap notifications.
[Failure Trap Enable]	Indicates whether or not traps are generated in response to call failures. Possible values are: True or False.

Descriptions

Operator	Parameters/Permissions	Description
show spvcbase	Administrator	Displays status information on SPVCs and SPVPs.

Examples

```
switch_prompt # show spvcbase
=====
Currently      Currently      SPVC Call   Notify      Failure
Failing SPVC   Failing SPVP   Failures    Interval    Trap Enable
=====
1              0              10          30          FALSE
```

SpvcCallFailuresTrapEnable

Use SpvcCallFailuresTrapEnable to enable or disable the generation of traps related to SPVC or SPVP call failures.

Operators

modify

Parameters

This attribute has no output parameters

Input Parameter	Description	Value/Field Size	Default
[TrapEnable]	Toggles traps resulting from call failures On or Off.	True, False	False

Descriptions

Operator	Parameters/Permissions	Description
modify spvccallfailurestrapenable	[TrapEnable] <trapenable> Administrator	Toggles traps resulting from call failures.

Examples

```
switch_prompt # modify spvccallfailurestrapenable  
  
TrapEnable(False)                                : TRUE  
  
switch_prompt #
```

SpvcFailed

Use SPVCFailed to display failed SPVCs on the switch. An SPVC fails when its call setup request is rejected by the target switch. The SPVC call request is sent from this switch (the source switch) to the target switch.



Note Use the `show spvc /d` command to determine the specific cause of SPVC failure (indicated by the Last Release Cause code).

Operators

show

Parameters

Input Parameter	Description	Value/Field Size	Default
[PortNumber]	Port number on the switch.	A1 to B4 (2500 family), 1A1 to 8B4 (6500), or A1	All
[SourceVpi]	VPI allocated to the SPVC source port.		
[SourceVci]	VCI allocated to the SPVC source port.		

Output Parameter	Description
[PortNumber]	Physical port number on the switch.
[SourceVpi]	VPI allocated to the SPVC originating port.
[SourceVci]	VCI allocated to the SPVC originating port.
[CurrentFailingTimeStamp]	Time stamp indicating when the SPVC started failing.

Descriptions

Operator	Parameters/Permissions	Description
show spvcfailed	[PortNumber] <portnumber> [SourceVpi] <sourcevpi> [SourceVci] <sourcevci> Administrator	Displays information on failed SPVCs.

Examples

```
switch_prompt # show spvcfailed
```

```
Executing this command : show SpvcFailed
```

```
PortNumber(ALL)           :
SourceVpi(0)               :
SourceVci(32)              :
```

```
=====
Port   Src VPI   Src VCI   Curr.Fail-Time-Stamp
              (Hr:Min:Sec)
=====
Al      0        101      0: 0: 0
=====
```

```
Total number of Failing SPVCs = 1
```

SpvcNotifyInterval

Use SpvcNotifyInterval to set the minimum elapsed time between successive traps that indicate a call failure.

Operators

modify

Parameters

This attribute has no output parameters.

Input Parameter	Description	Value/Field Size	Default
[NotifyInterval]	Minimum interval in seconds between traps that indicate a call failure.	0-3600 seconds	

Descriptions

Operator	Parameters/Permissions	Description
modify spvcnotifyinterval	[NotifyInterval] <notifyinterval>	Sets the interval between traps that indicate a call failure.

Examples

```
switch_prompt # set spvcnotifyinterval
```

```
NotifyInterval(30) : 1000
```

SpvcRestart

Use SpvcRestart to restart a failed SPVC on the switch. An SPVC fails when its call setup request is rejected by the target switch. The SPVC call request is sent from this switch (the source switch) to the target switch. SpvcRestart uses SPVC target information provided by the last attempt to establish the SPVC (information provided as input parameters by the Spvc attribute). If the target information was incorrect, restart the SPVC using the Spvc attribute and correct parameter values.

Operators

modify

Parameters

This attribute has no output parameters.

Input Parameter	Description	Value/Field Size	Default
[PortNumber]	Port number on the switch.	A1 to B4 (2500 family), 1A1 to 8B4 (6500), or A1	All
[SourceVpi]	VPI allocated to the source port.		
[SourceVci]	VCI allocated to the source port.		

Descriptions

Operator	Parameters/Permissions	Description
modify spvcrestart	[PortNumber] <portnumber> [SourceVpi] <sourcevpi> [SourceVci] <sourcevci> Administrator	Restarts an SPVC.

Examples

```
switch_prompt # modify spvcrestart
```

```
Executing this command : set SpvcRestart
PortNumber(ALL)          : a1
SourceVpi(0)              : 1
SourceVci(32)             : 32
```

SpvcTarget

Use SpvcTarget to display SPVC target information on the switch. Information is displayed only if the switch is the destination (target) of an SPVC. The SPVC is established (added) at a source switch across the ATM network.

Operators

show

Parameters

Input Parameter	Description	Value/Field Size	Default
[PortNumber]	Port number on the switch (number of the SPVC target port).	A1 to B4 (2500 family), 1A1 to 8B4 (6500), or A1	All

Output Parameter	Description
[Port]	Port number on the switch. (Same as the [PortNumber] input parameter.)
[TargetAddress]	Destination address to which the SPVC connects.
[Vpci]	VPI allocated to the target port.
[Vci]	VCI allocated to the target port.
[OperStatus]	Operational status of the SPVC. Possible values are: Connected, Establishment in Progress, Retries Exhausted, and Other.
[Source NetPrefix]	ATM address prefix at the source port (at the switch that initiated the SPVC).

Descriptions

Operator	Parameters/Permissions	Description
show spvctarget	[PortNumber] <portnumber> Administrator	Displays SPVC target information on the switch.

SpvcTarget

Examples

```
switch_prompt # show spvctarget

PortNumber(ALL)                : 7b3

Port      Target Address                                     Vpci  Vci
=====
7B3       11:11:11:11:11:11:11:11:11:11:11:11:11:11:11:11  0      101

  OperStatus   Source NetPrefix
=====
      Up       39:00:00:00:00:00:00:00:00:00:a3:87:0b

switch_prompt #
```


Spvp

(SmartSwitch 6500 Only)

Use SPVP to add, delete, or show soft PVPs (SPVPs) on the switch. An SPVP connects this switch (the source switch) to a switch across the ATM network (the target switch).



Note Before adding an SPVP at this switch, you must configure the target address at the target switch.

Operators

add, delete, show

Parameters

Input Parameter	Description	Value/Field Size	Default
[PortNumber]	Port number on the switch. (Physical port used as SPVP source port.)	A1 to B4 (2500 family), 1A1 to 8B4 (6500), or All	All
[SourceVpi]	VPI allocated to the SPVP source port.		
[DestinationSelectType]	Specifies whether or not the destination VPI input at the source switch must be used as the target port (at the target switch). If you specify Required, the VPI specified in the [DestinationVpi] input parameter must be used as the target port. If you specify Any, the target switch can use any VPI as the target port.	Required, Any	Required
[DestinationVpi]	VPI allocated to the target port.		
[TargetAddress]	Destination (target) address to which the SPVP should attempt to connect.	20-byte address	
[ForwardTrafficDescriptor Index]	Index of the forward (source to target) traffic descriptor.		
[BackwardTrafficDescriptor Index]	Index of the backward (target to source) traffic descriptor.		
[RetryInterval]	Time interval between SPVP retries.	0-3600000 milliseconds	

Input Parameter	Description	Value/Field Size	Default
[RetryLimit]	Maximum number of SPVP retries.	0-65535	
[RetryThreshold]	Number of consecutive failed setup attempts for a particular SPVP before the SPVPCallFailures object is incremented.	0-65525	

In the Output Parameter table below, (</d>) appears next to parameters that are available only through the **show spvp /a** (detailed) command

Output Parameter	Description
[Port]	Physical port number on the switch. (Same as the [PortNumber] input parameter.)
[Src VPI]	VPI allocated to the SPVP source port. (Same as the [SourceVpi] input parameter.)
[Operation Status]	Indicates operational status of the SPVP. Possible values are: Connected, Establishment in Progress, Retries Exhausted, and Other.
[Total Number of SPVPs]	Indicates the total number of SPVPs on the switch.
[Target Address]	Destination (target) address to which the SPVP attempts to connect.
[Target VPI]	VPI allocated to the target port. (Same as the [DestinationVpi] input parameter.)
[Last Release Cause]	Code that describes cause of SPVP failure (why SPVP has failed to connect) (see Table 2-11).
[Operation Status]	Operational status of the SPVP.
[Retry Interval]	Time interval between SPVP retries.
[Retry Timer]	Value of the retry timer.
[Retry Threshold]	Number of consecutive failed setup attempts for a particular SPVP before the SPVPCallFailures object is incremented.
[Retry Failures]	Number of failed retry attempts.
[Retry Limit]	Maximum number of SPVP retries.
[Traffic Type (Forward)]	Type of traffic in the forward (source to target) direction.

Output Parameter	Description
[Traffic Type (Backward)]	Type of traffic in the backward (target to source) direction.
[Forward Traffic Descriptor Index]	Index of the forward (source to target) traffic descriptor.
[Backward Traffic Descriptor Index]	Index of the backward (target to source) traffic descriptor.

Descriptions

Operator	Parameters/Permissions	Description
add spvp	[PortNumber] <portnumber> [SourceVPI] <sourcevpi> [DestinationSelectType] <destinationselecttype> [DestinationVPI] <destinationvpi> [TargetAddress] <targetaddress> [ForwardTrafficDescriptorIndex] <forwardtrafficdescriptorindex> [BackwardTrafficDescriptorIndex] <backwardtrafficdescriptorindex> [RetryInterval] <retryinterval> [RetryLimit] <retrylimit> [RetryThreshold] <retrythreshold> Administrator	Adds an SPVP.
delete spvp	[PortNumber] <portnumber> [SourceVPI] <sourcevpi> Administrator	Deletes an SPVP.
show spvp	[PortNumber] <portnumber> [SourceVPI] <sourcevpi> Administrator	Displays SPVPs.

Table 2-11 SPVP Failure Cause Codes

Code	Description
1	Unallocated (unassigned) number.
2	No route to specified transit network.
3	No route to destination.
16	Normal call clearing.
17	User busy.
18	No user responding.

Table 2-11 SPVP Failure Cause Codes

Code	Description
21	Call rejected.
22	Number changed.
23	User rejects all calls with calling line identification (CLID) restriction.
27	Destination out-of-order.
28	Invalid number format (address incomplete).
30	Response to STATUS ENQUIRY.
31	Normal, unspecified.
34	Requested called party soft PVPC not available.
35	Requested VPI not available.
36	VPCI assignment failure.
37	User cell rate not available.
38	Network out of order.
41	Temporary failure.
43	Access information discarded.
45	No VPCI available.
47	Resource unavailable, unspecified.
49	Quality of Service unavailable.
53	Call cleared due to change in PGL
57	Bearer capability not authorized.
58	Bearer capability not presently available.
63	Service or option not available, unspecified.
65	Bearer capability not implemented.
73	Unsupported combination of traffic parameters.
78	AAL parameters cannot be supported.
81	Invalid call reference value.
82	Identified channel does not exist.
88	Incompatible destination.
89	Invalid endpoint reference.
91	Invalid transit network selection.
92	Too many pending add party requests.

Table 2-11 SPVP Failure Cause Codes

Code	Description
96	Mandatory information element is missing.
97	Message type non-existent or not implemented.
99	Information element non-existent or not implemented.
100	Invalid information element contents.
101	Message not compatible with call state.
102	Recovery on timer expiry.
104	Incorrect message length.
111	Protocol error, unspecified.

Examples

```

switch_prompt # show spvp
PortNumber(ALL)           :
SourceVpi(0)              :
SourceVci(32)             :

=====
Port   Src VPI   Operation Status
=====

Total number of SPVPs = 0

switch_prompt# add spvp
PortNumber()               : 5a2
SourceVpi(0)              : 0
DestinationSelectType(REQUIRED) :
DestinationVPI(0)         : 0
TargetAddress()           : 11:11:11:11:11:11:11:11:11:11:11:11:
11:11:11:11:11:11:11:11
ForwardTrafficDescriptorIndex() : 2
BackwardTrafficDescriptorIndex() : 2
RetryInterval(10000)         :
RetryLimit(0)                :
RetryThreshold(1)            :

Added SPVP successfully.

```

Spvp

```
switch_prompt # show spvp /d
PortNumber(ALL)                : 5a2
SourceVpi(0)                   : 0
Port                           : 5a2
Source VPI                     : 0
Target Address                 : 11:11:11:11:11:11:11:11:11:11:11:11:11:11:11
:11:11:11:11:11
Target VPI                     : 0
Last Release Cause             : 0
Operation Status               : Connected
Retry Interval                 : 10000
Retry Timer                    : 0
Retry Threshold                : 1
Retry Failures                 : 0
Retry Limit                    : 0
Traffic Type (Forward)        : CBR
Traffic Type (Backward)       : CBR
Forward Traffic Descriptor Index : 2
Backward Traffic Descriptor Index : 2
```

Total number of SPVPs = 1

```
switch_prompt # delete spvp
PortNumber()                   : 5a2
SourceVpi(0)                   : 0
```

Deleted SPVP successfully.

```
switch_prompt #
```

```
switch_prompt # show spvp
PortNumber(ALL)                :
SourceVpi(0)                   :
SourceVci(32)                  :
```

```
=====
Port   Src VPI   Operation Status
=====
```

Total number of SPVPs = 0

```
switch_prompt #
```

SpvpFailed

(SmartSwitch 6500 Only)

Use SpvpFailed to display failed SPVPs on the switch. An SPVP fails when its call setup request is rejected by the target switch. The SPVP call request is sent from this switch (the source switch) to the target switch.



Note Use the `show spvp /d` command to determine the specific cause of SPVP failure (indicated by the Last Release Cause code).

Operators

show

Parameters

Input Parameter	Description	Value/Field Size	Default
[PortNumber]	Physical port number on the switch.	A1 to B4 (2500 family), 1A1 to 8B4 (6500), or A1	All
[SourceVpi]	VPI allocated to the SPVP source port.		

Output Parameter	Description
[PortNumber]	Physical port number on the switch.
[SourceVpi]	VPI allocated to the SPVP originating port.
[CurrentFailingTimeStamp]	Time stamp indicating when the SPVP started failing.

Descriptions

Operator	Parameters/Permissions	Description
<code>show spvpfailed</code>	[PortNumber] <portnumber> [SourceVpi] <sourcevpi> Administrator	Displays information on failed SPVPs.

SpvpFailed

Examples

```
switch_prompt # show spvpfailed
```

Executing this command : show SpvpFailed

PortNumber(ALL) :

SourceVpi(0) :

```
=====
Port   Src VPI   Curr.Fail-Time-Stamp
              (Hr:Min:Sec)
=====
A1      0         0: 0: 0
```

Total number of Failing SPVPs = 1

SpvpRestart

(SmartSwitch 6500 Only)

Use SpvpRestart to restart a failed SPVP on the switch. An SPVP fails when its call setup request is rejected by the target switch. The SPVP call request is sent from this switch (the source switch) to the target switch. SpvpRestart uses SPVP target information provided by the last attempt to establish the SPVP (information provided as input parameters by the Spvp attribute). If the target information was incorrect, restart the SPVP using the Spvp attribute and correct parameter values.

Operators

modify

Parameters

This attribute has no output parameters.

Input Parameter	Description	Value/Field Size	Default
[PortNumber]	Port number on the switch.	A1 to B4 (2500 family), 1A1 to 8B4 (6500), or A1	All
[SourceVpi]	VPI allocated to the originating port.		

Descriptions

Operator	Parameters/Permissions	Description
modify spvprestart	[PortNumber] <portnumber> [SourceVpi] <sourcevpi> Administrator	Restarts an SPVP.

SpvpRestart

Examples

```
switch_prompt # modify spvprestart
```

Executing this command : set SpvpRestart

PortNumber(ALL) : **a1**

SourceVpi(0) : **1**

LeafReference(1) : **1**

SpvpTarget

(SmartSwitch 6500 Only)

Use SpvpTarget to display SPVP target information on the switch. Information is displayed only if the switch is the destination (target) of an SPVP. The SPVP is established (added) at a source switch across the ATM network.

Operators

show

Parameters

Input Parameter	Description	Value/Field Size	Default
[PortNumber]	Port number on the switch (number of the SPVP target port).	A1 to B4 (2500 family), 1A1 to 8B4 (6500), or A1	All

Output Parameter	Description
[Port]	Port number on the switch. (Same as the [PortNumber] input parameter.)
[TargetAddress]	Destination address to which the SPVP connects.
[Vpci]	VPI allocated to the target port.
[OperStatus]	Operational status of the SPVP. Possible values are: Connected, Establishment in Progress, Retries Exhausted, and Other.
[Source NetPrefix]	ATM address prefix at the source port (at the switch that initiated the SPVP).

Descriptions

Operator	Parameters/Permissions	Description
show spvptarget	[PortNumber] <portnumber> Administrator	Displays SPVP target information on the switch.

SpvpTarget

Examples

```
switch_prompt # show spvptarget
```

```
PortNumber(ALL) : 7b3
```

Port	Target Address	Vpci
7B3	11:11:11:11:11:11:11:11:11:11:11:11:11:11:11:11:11:11	0

OperStatus	Source NetPrefix
Up	39:00:00:00:00:00:00:00:00:00:a3:87:0b

```
switch_prompt #
```

SSCOPConfig

Use SSCOPConfig to set or display switch Service-Specific Connection-Oriented Protocol parameters. SSCOP parameters control how the switch interoperates with other switches.



Note The following applies to SmartSwitch 6500 only: You can hot-swap TSMs. Hot-swapping is replacing a module when the chassis is powered up. If you replace a TSM with another TSM of the same type (same I/O ports), existing configuration of port parameters is not affected. This includes parameters set using any of the following attributes: ATMRoute, CACServiceClassBw, IlmiConfig, NetPrefix, Port, PortConfig, PVC, PVP, ServiceRegistry, SigTimer, SigStatistics, SSCOPConfig, and SSCOPStatistics. If you replace a TSM with another TSM of a different type, existing configuration of port parameters is deleted. The deletion occurs when the new module is plugged into the chassis backplane.

Operators

modify, show

Parameters

Input Parameter	Description	Value/Field Size	Default
[PortNumber]	Port number on the switch. You can specify a physical or virtual port.	A1 to B4 (physical-2500 family), A1.n to B4.n (virtual-2500 family), 1A1 to 8B4 (physical-6500), 1A1.n to 8B4.n (virtual-6500), or All	
[MaxPD]	Number of SD PDUs after which a Poll PDU is generated.	5-20	20
[MaxCC]	Number of BEGIN PDUs sent during line establishment.	4-10	4
[PollTime]	Time (in milliseconds) between generation of Poll PDUs.	100-1000	750

Input Parameter	Description	Value/Field Size	Default
[KeepAliveTime]	Rate of PollStat exchange (in milliseconds) in the absence of SD PDU traffic.	1000-2000	2000
[NoResponseTime]	Maximum time (in milliseconds) within which a Poll must be acknowledged by a Stat PDU.	10000-15000	7000
[CCTime]	Rate at which BEGIN and END PDUs are generated during link establishment of release.	1000-2000	1000
[RxWindowSz]	Receive window size when SSCOP stack is initialized.	32-256	64

Output Parameter	Description
[Port#]	Port number on the switch.
[MaxPD]	Number of SD PDUs after which a Poll PDU is generated.
[MaxCC]	Number of BEGIN PDUs sent during line establishment.
[PollTm]	Time (in milliseconds) between generation of Poll PDUs. (Same as the [PollTime] input parameter.)
[KpAliveTm]	Rate of PollStat exchange (in milliseconds) in the absence of SD PDU traffic. (Same as the [KeepAliveTime] input parameter.)
[NoRespTm]	Maximum time (in milliseconds) within which a Poll must be acknowledged by a Stat PDU. (Same as the [NoResponseTime] input parameter.)
[CCTm]	Rate at which BEGIN and END PDUs are generated during link establishment of release. (Same as the [CCTime] input parameter.)
[RxWindowSz]	Receive window size when SSCOP stack is initialized.

Descriptions

Operator	Parameters / Permissions	Description
modify sscop	[PortNumber] <portnumber> [MaxPD] <maxpd> [MaxCC] <maxcc> [PollTime] <polltime> [KeepTimeAlive] <keeptimealive> [NoResponseTime] <noresponsetime> [CCTime] <cctime> [RxWindowSz] <rxwindowsize> Administrator	Sets switch SSCOP parameters.
show sscopconfig	All	Displays switch SSCOP parameters.

Examples

```
switch_prompt # modify sscopconfig
```

```
PortID (1A1)           : 1B1
MaxPD(10)              : 15
MaxCC(4)               : 5
PollTime(200)          : 250
KeepAliveTime(1000)    : 1500
NoResponseTime(10000)  : 15000
CCTime(1000)           : 1500
RxWindowSz(256)        : 256
```

```
switch_prompt #
```

```
switch_prompt # show sscopconfig
```

```
PortNumber(ALL)       : 1a1
```

```
Port#   MaxPD   MaxCC   PollTm   KpAliveTm   NoRespTm   CCTm   RxWindowSz
=====
              (Timer value in MilliSecs)
=====
```

```
1A1      30      5       500      2000       7000      1000      25
```

```
switch_prompt #
```

SSCOPStatistics

Use SSCOPStatistics to display SSCOP statistics of a port or all ports.



Note The following applies to SmartSwitch 6500 only: You can hot-swap TSMs. Hot-swapping is replacing a module when the chassis is powered up. If you replace a TSM with another TSM of the same type (same I/O ports), existing configuration of port parameters is not affected. This includes parameters set using any of the following attributes: ATMRoute, CACServiceClassBw, IlmiConfig, NetPrefix, Port, PortConfig, PVC, PVP, ServiceRegistry, SigTimer, SigStatistics, SSCOPConfig, and SSCOPStatistics. If you replace a TSM with another TSM of a different type, existing configuration of port parameters is deleted. The deletion occurs when the new module is plugged into the chassis backplane.

Operators

show

Parameters

Input Parameter	Description	Value/Field Size	Default
[PortNumber]	Port number on the switch.	1A1 to 8B4 (for physical ports), 1A1.n to 8B4.n (for virtual ports), or All	All

Output Parameter	Description
[Port#]	Port number on the switch.
[Num BEGIN Transmitted]	Number of BEGIN PDUs transmitted.
[Num BEGIN Received]	Number of BEGIN PDUs received.
[Num BEGIN Retransmit Transmitted]	Number of BEGIN retransmit PDUs transmitted.
[Num BEGIN Retransmit Received]	Number of BEGIN retransmit PDUs received.
[Num BEGIN ACK Transmitted]	Number of BEGINACK PDUs transmitted.
[Num BEGIN ACK Received]	Number of BEGINACK PDUs received.

Output Parameter	Description
[Num BEGIN REJ Transmitted]	Number of BEGINREJECT PDUs transmitted.
[Num BEGIN REJ Received]	Number of BEGINREJECT PDUs received.
[Num RESYNC Transmitted]	Number of RESYNC PDUs transmitted.
[Num RESYNC Received]	Number of RESYNC PDUs received.
[Num RESYNC Retransmit Transmitted]	Number of RESYNC retransmit PDUs transmitted.
[Num RESYNC Retransmit Received]	Number of RESYNC retransmit PDUs received.
[Num RESYNC Ack Transmitted]	Number of RESYNC ack PDUs transmitted.
[Num RESYNC Ack Received]	Number of RESYNC ack PDUs received.
[Num ERRREC Transmitted]	Number of ERROR RECOVERY PDUs transmitted.
[Num ERRREC Received]	Number of ERROR RECOVERY PDUs received.
[Num ERRREC Retransmit Transmitted]	Number of ERROR RECOVERY retransmit PDUs transmitted.
[Num ERRREC Retransmit Received]	Number of ERROR RECOVERY retransmit PDUs received.
[Num ERRREC Ack Transmitted]	Number of ERROR RECOVERY ACK PDUs transmitted
[Num ERRREC Ack Received]	Number of ERROR RECOVERY ACK PDUs transmitted.
[Num END Transmitted]	Number of END PDUs transmitted.
[Num END Received]	Number of END PDUs received.
[Num END Retransmit Transmitted]	Number of END retransmit PDUs transmitted.
[Num END Retransmit Received]	Number of END retransmit PDUs received.
[Num END Ack Transmitted]	Number of END ACK PDUs transmitted.
[Num END Ack Received]	Number of END ACK PDUs received.
[Num POLL Transmitted]	Number of POLL PDUs transmitted.
[Num POLL Received]	Number of POLL PDUs received.

Output Parameter	Description
[Num STAT Transmitted]	Number of STAT PDUs transmitted.
[Num STAT Received]	Number of STAT PDUs received.
[Num USTAT Transmitted]	Number of USTAT PDUs transmitted.
[Num USTAT Received]	Number of USTAT PDUs received.
[Num SD Transmitted]	Number of SD PDUs transmitted.
[Num SD Received]	Number of SD PDUs received.
[Num SD Retransmitted]	Number of SD PDUs retransmitted.
[Num SD Acknowledged]	Number of SD PDUs acknowledged.
[Num SD Delivered]	Number of SD PDUs delivered.
[Num SD Duplicated]	Number of SD PDUs duplicated.
[NumS D Retransmission Req Sent]	Number of SD retransmission requests sent.
[Num SD Retransmission Req Rcvd]	Number of SD retransmission request received.
[Num Times TX Window Empty]	Number of times transmit window become empty.
[Num MAA Errors]	Number of MAA errors occurred.
[Num Times NORESPONSE Expired]	Number of times NORESPONSE timer expired.
[Num Max Times TCC Timer Expired]	Maximum number of times timer TCC expired while waiting for BEGIN PDU.
[Num Invalid PDUs Received]	Number of invalid PDUs received.
[Num Error PDUs Received]	Number of error PDUs received.

Description

Operator	Parameters / Permissions	Description
show sscopstatistics	[PortNumber] <portnumber> All	Displays SSCOP statistics.

Examples

```

switch_prompt # show sscopstatistics
PortID(ALL)                                     : 1a2

=====
SSCOP Statistics
=====
Port#                                           : 1A2
No of BEGIN transmitted                       : 1
No of BEGIN received                         : 0
No of BEGIN retransmit transmitted           : 0
No of BEGIN retransmit received              : 0
No of BEGINACK transmitted                   : 0
No of BEGINACK received                     : 1
No of BEGINREJ transmitted                   : 0
No of BEGINREJ received                     : 0
No of RESYNC transmitted                     : 0
No of RESYNC received                       : 0
No of RESYNC retransmit transmitted          : 0
No of RESYNC retransmit received             : 0
No of RESYNC ack transmitted                 : 0
No of RESYNC ack received                   : 0
No of ERRREC transmitted                     : 0
No of ERRREC received                       : 0
No of ERRREC retransmit transmitted          : 0
No of ERRREC retransmit received             : 0
No of ERRREC ack transmitted                 : 0
No of ERRREC ack received                   : 0
No of END transmitted                       : 0
No of END received                         : 0
No of END retransmit transmitted             : 0
No of END retransmit received               : 0
No of END ack transmitted                   : 0
No of END ack received                     : 0
No of POLL transmitted                      : 17
No of POLL received                        : 17
No of STAT transmitted                      : 17
No of STAT received                        : 17
No of USTAT transmitted                     : 0
No of USTAT received                       : 0
No of SD transmitted                       : 0
No of SD received                         : 0
No of SD retransmitted                     : 0
No of SD acknowledged                      : 0
No of SD delivered                         : 0
No of SD duplicated                        : 0
No of SD retransmission req sent            : 0
No of SD retransmission req rcvd           : 0
No of times TX window empty                 : 0
No of MAA errors                           : 0
No of times NORESPONSE expired              : 0
No of max times TCC timer expired           : 0
No of Invalid PDUs received                 : 0
No of Error PDUs received                   : 0

switch_prompt #

```

SVC

Use SVC to display SVCs on a port or all ports.

Operator

show

Parameters

Input Parameter	Description	Value/Field Size	Default
[PortNumber]	Port number on the switch. You can specify a physical or virtual port.	A1 to B4 (physical-2500 family), A1. <i>n</i> to B4. <i>n</i> (virtual-2500 family), 1A1 to 8B4 (physical-6500), 1A1. <i>n</i> to 8B4. <i>n</i> (virtual-6500), or All	All

Output Parameter	Description
[Conn Id]	Identifier unique for each connection.
[Low Port]	Port receiving the backward flow of the high/low pair.
[Low VPI]	Low VPI (virtual path identifier) number.
[Low VCI]	Low VCI (virtual circuit identifier) number.
[Low Type]	Low port connection type (PMP or PTP).
[High Port]	Port sending the forward flow of the high/low pair.
[High VPI]	High VPI (virtual path identifier) number.
[High VCI]	High VCI (virtual circuit identifier) number.
[High Type]	High port connection type (PMP or PTP).
[Creation Time]	Time when the SVC was established (with respect to the boot time on the switch). Displayed in Hour:Minute:Seconds format.

Description

Operator	Parameters / Permissions	Description
show svc	[PortNumber] <portnumber> Administrator	Displays SVC(s) for s apecified port

Example

```
switch_prompt # show svc
```

```
PortNumber(ALL) : 1a1
```

```
=====
Conn  |      Low      |      High      | CreationTime
Id    | Port  Vpi Vci Type | Port  Vpi  Vci Type | (Hr:Min:Sec)
=====
695   A1   0   32  PTP  A3   0   32  PTP   0: 5:20
696   A1   0   33  PTP  A3   0   33  PTP   0: 5:20
697   A1   0   34  PTP  A3   0   34  PTP   0: 5:20
698   A1   0   35  PTP  A3   0   35  PTP   0: 5:20
699   A1   0   36  PTP  A3   0   36  PTP   0: 5:20
700   A1   0   37  PTP  A3   0   37  PTP   0: 5:20
701   A1   0   38  PTP  A3   0   38  PTP   0: 5:20
702   A1   0   39  PTP  A3   0   39  PTP   0: 5:20
703   A1   0   40  PTP  A3   0   40  PTP   0: 5:20
704   A1   0   41  PTP  A3   0   41  PTP   0: 5:20
=====
```

```
switch_prompt #
```

SVCById

Use SVCById to display a single or all SVCs in normal or detail mode.

Operator

show

Parameters

Input Parameter	Description	Value/Field Size	Default
[CrossConn]	Identifier unique for each connection. The identifier is displayed by the show svc command.		No default

In the Output Parameter table below, (</d>) indicates parameters that are available only through the **show svdbymd /a** (detailed) command

Output Parameter	Description
[Conn Id] and [Cross Connect Id]	Identifier for each unique connection. (Same as the [CrossConn] input parameter.)
[Low Port]	Port receiving the backward flow of the high/low pair.
[Low VPI]	Low VPI (virtual path identifier) number.
[Low VCI]	Low VCI (virtual circuit identifier) number.
[Low Cast Type]	Low port connection type (PMP or PTP).
[High Port]	Port sending the forward flow of the high/low pair.
[High VPI]	High VPI (virtual path identifier) number.
[High VCI]	High VCI (virtual circuit identifier) number.
[High Cast Type]	High port connection type (PMP or PTP).
[Creation Time]	Time when the SVC was established (with respect to boot time of the switch). Displayed in Hour:Minute:Seconds format.
[Admin Status] </d>	Administrative status (UP or DOWN).

Output Parameter	Description
[Operation Status] </d>	Operational status (UP or DOWN).
[Early Packet Discard] </d>	Early packet discard for the cross connect as calculated by CAC.
[High Port] </d>	Port receiving the forward traffic flow of the high/low pair.
[Cell Loss Ratio] </d>	Cell loss ratio on this VC.
[Cumulative Cell Delay Variation] </d>	Cumulative cell delay variation on this VC.
[Max Cell Transfer Delay] </d>	Maximum cell transfer delay on this VC.
[Cumulative Cell Transfer Delay] </d>	Cumulative cell transfer delay on this VC.
[Number of Cells Received in Fwd Direction] </d>	Number of cells received in the forward direction.
[Number of Cells Received in Bkw Direction] </d>	Number of cells received in the backward direction.
[Number of Cells Dropped in Fwd Direction] </d>	Number of cells dropped in the forward direction.
[Number of Cells Dropped in Bkw Direction] </d>	Number of cells dropped in the backward direction.
[Number of Epd Packets Dropped in Fwd Direction] </d>	Number of early packet discard packets dropped in the forward direction.
[Number of Epd Packets Dropped in Bkw Direction] </d>	Number of early packet discard packets dropped in the backward direction.

Descriptions

Operator	Parameters / Permissions	Description
show svcbyid	[ConnID] <connectionid> Administrator	Displays SVC(s) by connection ID.

Examples

```
switch_prompt # show svcbyid
CrossConn      : 704
```

```
=====
Conn  |           Low           |           High           | CreationTime
Id    | Port  Vpi Vci  Type | Port  Vpi Vci  Type | (Hr:Min:Sec)
=====
704   | 1A1   0   41   PTP | 1A3   0   41   PTP |      0: 5:20
```

```
switch_prompt # show svcbyid /d
CrossConnectNum(ALL) : 704
```

```
=====
Cross Connect Id : 704
Low Port : 1A1
Low VPI : 0
Low VCI : 41
Low Cast Type : PTP
High Port : 1A3
High VPI : 0
High VCI : 41
High Cast Type : PTP
Admin Status : UP
Operation Status : UP
Creation Time (Hr:Min:Sec:MillSec) : 0:5:20:0
Traffic Type (Forward) : -
Early Packet Discard (Forward) : DISABLED
Cell Loss Ratio (Forward) : 0
Cumulative Cell Delay Variation (Forward) : 0
Max Cell Transfer Delay (Forward) : 0
Cumulative Cell Transfer Delay (Forward) : 0
Number of Cells Received in the Fwd Direction : 0
Number of Cells Dropped in the Fwd Direction : 0
Number of Epd Packets Dropped in the Fwd Direction : 0
Traffic Type (Backward) : -
Early Packet Discard (Backward) : DISABLED
Cell Loss Ratio (Backward) : 0
Cumulative Cell Delay Variation (Backward) : 0
Max Cell Transfer Delay (Backward) : 0
Cumulative Cell Transfer Delay (Backward) : 0
Number of Cells Received in the Bkw Direction : 0
Number of Cells Dropped in the Bkw Direction : 0
Number of Epd Packets Dropped in the Bkw Direction : 0
```

```
switch_prompt #
```


Switch

Use Switch to backup or restore the switch configuration file.

Operators

backup, restore

Parameters

This attribute has no output parameters.

Input Parameter	Description	Value/Field Size	Default
[ServerIP]	IP address of the backup server.	Dot decimal/ 7-15 characters	No default
[Path]	Pathname of the backup directory.	256 characters	backup: public/Smart6500.ztr (initially, then last path used) restore: public/Smart6500.ztr (initially, then last path used)

Descriptions

Operator	Parameters/Permissions	Description
backup switch	[ServerIP] <serverip> [Path] </back_dir/backup_file> Administrator	<p>Copies the current configuration of the master TSM/CPU module to a backup file at an end station. This command backs up the switch configuration only. It does not back up the load image. It prompts you for the IP address of the workstation to which you are saving the switch configuration as well as the backup path and filename. The end station must have TFTP server software running in order to transfer files from the switch. If you have previously entered backup switch, these values appear as the parameter defaults for [ServerIP] and [Path]. The default is the name of the switch—smartcell. If you change the switch name using modify switchname, the backup filenames are automatically adjusted to reflect this new switch name.</p> <p>You can back up directly to the /tftpboot directory or create a subdirectory under /tftpboot (for example, /back_dir). However, your backup file must exist under the /tftpboot directory or the sub-directory on the target end station. The backup file can be created with any name. Both the directory and file must have appropriate read and write permissions to complete the backup successfully.</p>
restore switch	[ServerIP] <serverip> [Path] </back_dir/backup_file> Administrator	<p>Restores the switch configuration from a prior backup. It requires an IP address, as well as the file name. As with backup switch, this command also requires TFTP protocol. The switch must be rebooted after restore switch for the new configuration to take effect.</p>

Examples

```
switch_prompt # backup switch
ServerIP(1.1.1.200)                : 1.1.1.200
Path(public/smartcell.ztr)        : /back_dir/cnfg_wk04
switch_prompt #

switch_prompt # restore switch
ServerIP()                        : 1.1.1.200
Path(/back_dir/cnfg_wk04)         :
Backup file is valid.
Restoring a backup file will completely replace any data stored in the flash.
Are you sure this is what you want to do?
Confirm(y/n)? : y
switch_prompt #
```

SwitchConfig

Use SwitchConfig to manage switch-related parameters, such as switchname and IP address.

Operators

modify, show

Parameters

Input Parameter	Description	Value/Field Size	Default
[SwitchName]	Name of the switch.	1-19 characters	switch_1
[IPAddress]	IP address of Ethernet port on the switch.	Dot decimal/ 7-15 characters	10.0.0.1
[IPNetMask]	IP netmask of Ethernet port. Defaults to the appropriate netmask, based on IP address class. Calculated from the first two high bits of the IP address. Must be specified only if IP subnets are being used.	Dot decimal/ 7-15 characters	255.0.0.0, 255.255.0.0 or 255.255.255.0

Output Parameter	Description
[Switch Name]	Name of the switch. (Same as the [SwitchName] input parameter.)
[IP Address]	IP address of the Ethernet port on the switch. (Same as the [IPAddress] input parameter.)
[IP Netmask]	IP netmask of the Ethernet port. (Same as the [IPNetMask] input parameter.)
[CPU MAC Address (Base)]	Base MAC (media access control) address for the TSM/CPU module. There are 128 addresses, starting at this base address. The first is used for the Ethernet port associated with the TSM/CPU.
[Chassis MAC Address (Base)]	Base MAC address for the SmartSwitch 6500 chassis.
[Power Mode]	Whether or not the switch is configured for a redundant power supply.
[Supply Installed]	Which power supply is installed.
[Supply ON]	Which power supply is ON.

Output Parameter	Description
[Number of TSM Boards]	Number of TSM modules installed in the chassis.
[ACTIVE CPU Model]	Model of the active CPU (up to 7 characters).
[ACTIVE CPU Speed]	Speed of the active CPU.
[ACTIVE CPU Board ID]	ID number of the active CPU board (1 character).
[ACTIVE CPU Board Rev]	Revision number of the active CPU board (1 character).
[ACTIVE CPU DRAM]	DRAM memory size of the active CPU (in megabytes; up to 4 characters).
[ACTIVE CPU Common DRAM]	Common DRAM memory size (in megabytes; up to 4 characters).
[Number of CSM Boards]	Number of CSM modules installed in the chassis.
[Cell Memory Size]	Total cell buffer size (k cells).
[Switch Software Type]	Type of switch software package (server).
[Software Version]	Version of the software (X.X).
[Build Date]	Software build date (day/month/date/hr:min:sec year).
[Software Image Size]	Binary image size (bytes).
[Heap Space Used/Total/%Free]	Total heap space used, total memory allocated to heap, and percent of free memory (bytes/bytes/%).

Descriptions

Operator	Parameters/Permissions	Description
modify switchconfig	[SwitchName] <switchname> [IPAddress] <ipaddress> [IPNetMask] <ipnetmask> Administrator	Runs automatically when you first configure the switch, then prompts you for the required input. Enter modify switchconfig if you want to change any of the above parameters after the initial switch configuration. Unless you are experienced with configuring IP subnets, it is recommended that you accept the IP netmask default.

Operator	Parameters/Permissions	Description
show switchconfig	All	Displays hardware and software configuration information about the switch. It also includes auto-detect hardware configuration information, such as number of switch boards and memory, and software information such as the type and version. Any future hardware or software changes will be detected automatically when the switch is rebooted.

Examples

```

switch_prompt # modify switchconfig
SwitchName(switch_1)           : switch_2
IPAddress(200.30.72.122)       : 1.1.1.202
IPNetMask(255.255.255.0)      : 255.255.255.128

switch_prompt #

switch_prompt # show switchconfig

Switch Configuration
=====
Switch Name                  : Smart6500_1

IP Address                   : 206.61.237.22
IP Netmask                   : 255.255.255.0
CPU MAC Address (Base)      : 00:20:D4:28:C1:80
Chassis MAC Address (Base)  : 00:00:1D:A3:87:0B

Power Mode                   : Redundant
Supply Installed             : 1 & 2
Supply ON                    : 1 & 2

Number of TSM Boards        : 1
ACTIVE CPU Model             : i960 HX
ACTIVE CPU Speed             : 33 MHz
ACTIVE CPU Board ID         : 12
ACTIVE CPU Board Rev        : 7
ACTIVE CPU DRAM              : 32 MB
ACTIVE CPU Common DRAM      : 32 MB

Number of CSM Boards        : 1
Cell Memory Size             : 29200 K cells

Switch Software Type        : Server
Software Version             : 02.02(21)-EQA
Build Date                   : Mon Aug 17 16:40:04 PDT 1998
Software Image Size          : 5017856 bytes
Heap Space (Used/Total/%Free) : 2301088/26706944/91.38%

switch_prompt #

```

SwitchName

Use SwitchName to change the name of the switch.

Operators

modify

Parameters

This attribute has no output parameters.

Input Parameter	Description	Value/Field Size	Default
[SwitchName]	Current name of the switch.	Up to 19 characters	switch_1

Descriptions

Operator	Parameters/Permissions	Description
modify switchname	[SwitchName] <newswitchname> Administrator	Changes the name you gave your switch. You can also change switchname using modify switchconfig if you want to change other switch features at the same time.

Examples

```
switch_prompt # modify switchname  
SwitchName(switch_1): switch_2  
  
switch_prompt #
```

SwitchTrafficCongestion

Use SwitchTrafficCongestion to manage global switch traffic congestion thresholds on the switch.

Operators

modify, show

Parameters

Parameter	Description	Value/Field Size	Default
[LowEPDWatermark]	Threshold (in cells) used by the switch to trigger low EPD (early packet discard), EFCI, and backward RM (resource management) cell marking.	0-16383 or 0-32767, depending on memory size.	
[HighEPDWatermark]	Threshold (in cells) the switch uses to trigger high EPD.	0-16383 or 0-32767, depending on memory size.	
[CLP1_DiscardWatermark]	Threshold the switch uses to discard cells when the memory buffer is full.	0-16383 or 0-32767, depending on memory size.	
[RMCellMarkingEnable]	Indicates whether RM cell marking is enabled on the switch.	Disable, Enable	Disable
[ExplicitRateMarkingEnable]	Indicates whether explicit rate marking is enabled on the switch.	Disable, Enable	Disable
[EFCIMarkingEnable]	Indicates whether the EFCI cell is enabled on the switch.	Disable, Enable	Disable

Descriptions

Operator	Parameters/Permissions	Descriptions
<code>modify</code> <code>switchtrafficcongestion</code>	<div>[LowEPDWatermark] <lowepdwatermark> [HighEPDWatermark] <highepdwatermark> [CLP1_DiscardWatermark] <clp1_discardwatermark> [RMCellMarkingEnable] <rmcellmarkingenable> [ExplicitRateMarkingEnable] <explicitratemarkingenable> [EFCIMarkingEnable] <efcimarkingenable> Administrator</div>	Modifies the congestion control parameters for the switch.
<code>show</code> <code>switchtrafficcongestion</code>	All	Displays the current traffic congestion settings for the switch.

Examples

```
switch_prompt # modify switchtrafficcongestion
LowEPDWatermark(10922)           : 20971
HighEPDWatermark(21845)          : 10485
CLP1_DiscardWatermark(13072)     : 13107
RMCellMarkingEnable(disable)     :
ExplicitRateMarkingEnable(disable) :
EFCIMarkingEnable(disable)       :

switch_prompt #

switch_prompt # show switchtrafficcongestion

Switch Traffic Congestion Parameters
=====
Low EPD Threshold                : 20971 cells
High EPD Threshold                : 10485 cells
Global Congestion Threshold      : 13107 cells
CLP1 Discard Threshold           : 13107 cells
RM Cell Marking Enable           : OFF
EFCI Cell Marking Enable         : OFF
Explicit Rate Marking Enable     : OFF

switch_prompt #
```


TrafficDescriptor

Use TrafficDescriptor to manage traffic types.

Operators

add, delete, show

Parameters

Input Parameter	Description	Value/Field Size	Default
[TrafficType]	Service category supported.	CBR, UBR, RTVBR, NRTVBR, ABR	UBR
[TrafficDescriptorType]	Traffic descriptor type.	Seven possible combinations, represented by any of the following numbers: 2-7 or 11. PeakCellRate CLP0+1 (2) PeakCellRate CLP0+1, PeakCellRate CLP0 (3) PeakCellRate CLP0+1, PeakCellRate CLP0, Tag CLP = 1 (4) PeakCellRate CLP0+1, SustCellRate CLP0+1, MaxBurstSize CLP0+1(5) PeakCellRate CLP0+1, SustCellRate CLP0, MaxBurstSize CLP0 (6) PeakCellRate CLP0+1, SustCellRate CLP0, MaxBurstSize CLP0, Tag CLP = 1(7) BestEffort (11)	2
[TrafficDescriptorIndex]	Unique identifier for each traffic descriptor. Use show trafficdescriptor to get index numbers.	Positive integer	No default
[PCRCLP0+1]	Peak cell rate CLP = 0+1 (KiloBits per second).	Zero or positive integer	100
[PCRCLP0]	Peak cell rate CLP = 0 (KiloBits per second).	Zero or positive integer	0
[SCRCLP0+1]	Sustainable cell rate CLP = 0+1 (KiloBits per second).	Zero or positive integer	0

Input Parameter	Description	Value/Field Size	Default
[SCRCLP0]	Sustainable cell rate CLP = 0 (KiloBits per second).	Zero or positive integer	0
[MBSCLP0+1]	Maximum burst size CLP = 0+1 (KiloBits).	Zero or positive integer	0
[MBSCLP0]	Maximum burst size CLP = 0 (KiloBits).	Zero or positive integer	0
[QOSClass]	QOS class.	Any of the following numbers: 0, 1, 2, 3, 4, 5 Unspecified (0) Class1 (1) Class2 (2) Class3 (3) Class4 (4) Class5 (5)	1
[AALType]	ATM adaptation layer type.	Any of the following numbers: 1, 2, 3, 5, 16 AAL1 (1) AAL2 (2) AAL3/4 (3) AAL5 (5) Unspecified (16)	5

Output Parameter	Description
[TD#]	Unique identifier for each traffic descriptor. (Same as the [TrafficDescriptorIndex] input parameter.)
[Traff Type]	Service category supported. (Same as the [TrafficType] input parameter.) Possible values are: CBR, UBR, RTVBR, NRTVBR, or ABR.
[Desc Type]	Traffic descriptor type. (Same as the [TrafficDescriptorType] input parameter.) Possible values are: 2 (PeakCellRate CLP0+1), 3 (PeakCellRate CLP0+1, PeakCellRate CLP0), 4 (PeakCellRate CLP0+1, PeakCellRate CLP0, Tag CLP = 1), 5 (PeakCellRate CLP0+1, SustCellRate CLP0+1, MaxBurstSize CLP0+1), 6 (PeakCellRate CLP0+1, SustCellRate CLP0, MaxBurstSize CLP0), 7 (PeakCellRate CLP0+1, SustCellRate CLP0, MaxBurstSize CLP0, Tag CLP = 1), or 11 (BestEffort).
[Qos]	Quality of service class. (Same as the [QOSClass] input parameter.) Possible values are 0 (Unspecified), 1 (Class 1), 2 (Class 2), 3 (Class 3), or 4 (Class 4).
[Peak Cell Rate CLP_0]	Peak cell rate CLP=0 (in kilobits per second).

Output Parameter	Description
[Peak Cell Rate CLP_0+1]	Peak cell rate CLP=0+1 (in kilobits per second).
[Sust Cell Rate CLP_0]	Sustainable cell rate CLP=0 (in kilobits per second).
[Sust Cell Rate CLP_0+1]	Sustainable cell rate CLP=0+1 (in kilobits per second).
[Max Burst Size CLP_0]	Maximum burst size CLP=0 (in kilobits per second).
[Max Burst Size CLP_0+1]	Maximum burst size CLP=0+1 (in kilobits per second).
[Aal Type]	ATM adaption layer type. (Same as the [AALTYPE] input parameter.) Possible values are: 1 (AAL1), 2 (AAL2), 3 (AAL3), 4 (AAL3/4), 5 (AAL5), 16 (Unspecified).

Descriptions

Operator	Parameters / Permissions	Description
add trafficdescriptor	[TrafficType] <traffictype> [TrafficDescriptorType] <trafficdesctype> [PCRCLP01] <pcrculp01> [PCRCLP0] <pcrculp0> [SCRCLP01] <scrclp01> [SCRCLP0] <scrclp0> [MBSCLP01] <mbsclp01> [MBSCLP0] <mbsclp0> [QOSCLASS] <qosclass> [AALTYPE] <aaltype> Administrator	Creates a new traffic descriptor.
delete trafficdescriptor	[TrafficDescriptorIndex] <trafficdescriptorindex> Administrator	Deletes a traffic descriptor.
show trafficdescriptor	Administrator	Shows traffic descriptors.

Examples

switch_prompt # **add trafficdescriptor**

Executing this command : add TrafficDescriptor
 TrafficType(UBR) : **CBR**
 TrafficDescriptorType(2) : **2**
 PCRCLP01(100) : **200**
 PCRCLP0(0) : **200**
 SCRCLP01(0) : **200**
 SCRCLP0(0) : **200**
 MBSCLP01(0) : **200**
 MBSCLP0(0) : **200**
 QOSCLASS(1) : **1**
 AALTYPE(5) : **5**
 switch_prompt #

switch_prompt # **delete trafficdescriptor**

Executing this command : delete TrafficDescriptor
 TrafficDescriptorIndex() : **1**
 switch_prompt #

switch_prompt # **show trafficdescriptor**

Executing this command : show TrafficDescriptor

```
=====
TD#  Traff  Desc  QoS  Peak Cell Rate  Sust Cell Rate  Max Burst Size  Aal
      Type   Type                (Kb/s)          (Kb/s)          (Kb)          Type
                        CLP_0  CLP_0+1      CLP_0  CLP_0+1      CLP_0  CLP_0+1
=====
```

1	CBR	2	1	0	100	0	0	0	0	5
2	CBR	3	1	200	200	0	0	0	0	5

switch_prompt #

TrapCommunity

Use TrapCommunity to manage the list of hosts that the switch sends trap notifications to concerning significant events. Each trap community has a name, IP address, and port number. The trap community name and address combination must be unique.

Operators

add, delete, show

Parameters

Input Parameter	Description	Value/Field Size	Default
[Name]	Name of the trap community.	64 characters	No default
[IPAddr]	IP address of the host to which traps are sent.	Dot decimal/ 15 characters	No default
[Port]	Host port number to which traps are sent.	0-65535	162

Output Parameter	Description
[TrapCommunityName]	Name of the trap community. (Same as the [Name] input parameter.)
[IP Address]	IP address of the host to which traps are sent. (Same as the [IPAddr] input parameter.)
[Port]	Host port number to which traps are sent.

Descriptions

Operator	Parameters/Permissions	Descriptions
add trapcommunity	[Name] <name> [IPAddr] <ipaddress> [Port] <portnumber> Administrator	Creates a trap community entry on the switch.
delete trapcommunity	[Name] <name> [IPAddr] <ipaddress> Administrator	Removes an existing trap community from the switch.

Operator	Parameters/Permissions	Descriptions
show trapcommunity	All	Displays all trap communities configured on the switch.

Examples

```
switch_prompt # add trapcommunity
Name()                : boris
IpAddr()               : 204.95.77.148
Port (162)             : 100
switch_prompt #
```

```
switch_prompt # show trapcommunity
```

TrapCommunity Name	IP Address	Port
trapcomm	204.95.77.147	162
boris	204.95.77.148	100

```
switch_prompt #
```

```
switch_prompt # delete trapcommunity
Name()                : boris
IpAddr()               : 204.95.77.148
switch_prompt #
```

```
switch_prompt # show trapcommunity
```

TrapCommunity Name	IP Address	Port
trapcomm	204.95.77.147	162

```
switch_prompt #
```

TrustedNMS

Use TrustedNMS to configure a trusted network management system (NMS) on the switch. The trusted NMS is identified by its IP address. The trusted network management system is the only NMS allowed to perform critical operations such as:

- Backup or restore a switch configuration
- Add trap destinations for another NMS
- Download switch software (switch operating system, boot load image, or POST)

When SNMP is used, the IP address of the requesting station is checked against the trusted NMS address as a method of switch security. There can be only one trusted NMS configured on a switch.

Operators

modify, show

Parameters

Input Parameter	Description	Value/Field Size	Default
[IPAddr]	IP address of the authorized NMS.	Dot decimal/ 15 characters	0.0.0.0

Output Parameter	Description
[Trusted NMS IP-Address]	IP address of the authorized NMS. (Same as [IPAddr] Input Parameter.)

Descriptions

Operator	Parameters/Permissions	Description
modify trustednms	[IPAddr] <ipaddr> Administrator	Configures the switch to treat a particular host IP address as a trusted NMS.
show trustednms	Administrator	Displays the currently configured IP address of the host that is treated as the trusted NMS. If trusted NMS is not configured, it will display 0.0.0.0.

Examples

```
switch_prompt # modify trustednms  
IpAddr(0.0.0.0) : 90.1.1.1  
Trusted NMS IP-Address : 90.1.1.1  
switch_prompt #
```

```
switch_prompt # show trustednms  
Trusted NMS IP-Address : 90.1.1.1  
switch_prompt #
```


3 BOOT LOAD COMMANDS

This chapter describes the low-level boot load commands. Boot load commands are used for setting switch start-up behavior and for performing software downloads. Use the boot load commands to:

- Set which copy of the boot load software is the default copy
- Clear all configurations stored within the flash file system
- Check boot load software version numbers
- Load switch software upgrades
- Set whether power on system tests (POST) are run by default



Note For detailed information on using the boot load Commands, see your product's SmartSwitch user guide.



Caution The commands described in this section are intended to be used only for loading upgrade software or to reinstall software that has become corrupt.

Accessing the Boot Load Commands

Boot load commands are executed from the boot load prompt. The boot load prompt is not part of the switch console, and is accessible only after a reboot and before the switch software is loaded. Perform the following steps to gain access to the boot load prompt:

1. Connect a terminal (or PC running terminal emulation software) to the RJ-45 terminal port on the front of the switch.
2. Login as administrator.
3. Enter the `reboot` command from the terminal.
4. Wait for the following message to appear:

```
Press any key to exit to boot load prompt. .  
07
```

5. Before the countdown reaches zero, press a key to access the boot load prompt. Notice that the boot load prompt (`=>`) differs from the prompt used in the switch console.

chpi Command

Use **chpi** to set one of the two boot load software images as the default. Unless otherwise specified within the initial reboot countdown, the default boot load software image is the image that is loaded into DRAM and executed.

Parameter	Explanation
0	Set boot load software image stored in area 0 of the boot PROM as the default image.
1	Set boot load software image stored in area 1 of the boot PROM as the default image.

Example

Set the boot load software image in boot PROM location 1 as the default image.

```
=>chpi 1
Modifying Default value for Boot Load Software,
please wait...
New default Boot Load Software value programmed
successfully.
New Default Boot Load Software value: 1
=>
```

clfs Command

Use **clfs** to clear the switch flash file system. The **clfs** command clears all VLAN and ELAN configurations, route definitions, port settings, and PVC configurations. **clfs** also clears all IP addresses, including the IP address for the switch Ethernet interface.

Example

```
=>clfs
Clearing Flash File System, please wait...
Successfully cleared Flash File System
=>
```

**Note**

After you return to the switch console (exit the boot prompt) following **clfs**, a series of messages appears at the console ending with the **password:** prompt. At the **password:** prompt, login using the default password. Next, enter **clear config** to reinitialize the flash file system and reboot again to enable normal switch operation.

dcfg Command

Use **dcfg** to display information about the current boot PROM configuration

- Revision numbers of both boot load software images
- Display the switch MAC address
- Number (in hexadecimal) of contiguous MAC addresses after the base MAC address
- Show whether POST is on or off

Example

```
=>dcfg
Default Boot Load Software: 0
Boot Load Software0 Rev Number =    1
Boot Load Software1 Rev Number =    1
MAC address: 0 20 d4 14 85 0
Number of contiguous MAC addresses, starting at this base: 80
POST OFF
=>
```

df Command

Use **df** (download firmware) to download software images from a TFTP/Bootp server to the flash RAM of the switch.



Note Be sure the location and names of the image files are known to the TFTP/Bootp server to allow the server to automatically download the files to the switch.

The **df** command uses three parameters: **b**, **s**, and **p**. These parameters specify which software component to download

Parameter	Explanation
b	Download the boot load image into boot PROM. The boot PROM contains two boot load images (one is a backup copy). The df b command always downloads over the boot load image that is not currently running.
s	Download the switch operating software into flash RAM.
p	Download POST diagnostics into flash RAM.
none	Same as s , downloads switch operating software into flash RAM.

Examples

```
=>df s
You've requested a Switch Software download
Are you sure?(Y/N)y
Initializing ethernet...
Starting Bootp...
    Boot file: c:\tftpboot\switch.ima
Using TFTP to get bootfile "c:\tftpboot\switch.ima" .
.....
.....
.....
.....

.....
.....
.....
.....
Validity checks of the Switch Software Downloaded file...
All Validity checks OK
Programming downloaded image into Switch Software section, please wait...
New Switch Software programmed successfully
=>
```

go Command

Use the `go` command to exit the boot load prompt and run switch software (with or without POST).

Parameter	Explanation
<code>s</code>	Bypass POST and go directly to switch software.
<code>p</code>	Run POST, and then run switch software.
<code>none</code>	Same as <code>s</code> ; bypass POST and go directly to switch software.

Examples

```
=>go s
Bypassing POST
Verifying Checksum of Switch Software...
Attaching network interface ei0... done.
Attaching network interface lo0... done.
0xe054f600 (tRootTask): flashFsLib: Initialized
Initializing Flash File-System
Initializing System
Initializing Hardware
Initializing Alarms, Logging and Tracing
Initializing ILMI
Initializing PM
Initializing Link Daemon
Initializing LANE Servers
NOTICE - 'ZLESSRV' ***** LES started *****
NOTICE - 'tZLinkStatus' Port A1      (1) UP
NOTICE - 'tZLinkStatus' Port A2      (2) UP
Initializing LANE & IP/ATM Client
NOTICE - 'tZLinkStatus' Port C1      (9) DOWN
Initializing Watchdog Timer
After ZKickWatchDog
Console task ID : 0xe04c4cb0
SmartSwitch Command Console
SmartSwitch Version 02.02(31) (c) Cabletron Systems Inc.
password:
```

he Command

Use **he** to get help on boot load commands or show list of all boot load commands. The question mark (?) can be entered in place of **he**.

Parameter	Explanation
[<command>]	Explain designated boot load command.
none	Show list of all boot load commands.

Examples

```
=>he chpi
chpi [option]
    option: 0 ..changes the Boot Load default to be Boot Load Software0;
           1 ..changes the Boot Load default to be Boot Load Software1
Changes Boot Load default to be Boot Load Software (0) or (1)
```

ponf Command

Use **ponf** to set whether POST diagnostics are run by default when the switch is started.

Parameter	Explanation
s	POST is off. Switch goes directly to start-up.
p	POST is on. Switch runs POST before going to switch operating software.
none	Same as s ; POST is off.

Examples

```
=>ponf p
Modifying Control/Stat field to execute POST, please wait...
New postOnOff value programmed successfully into Control/Stat field.
=>
```



Note **ponf** does not affect the behavior of the **go** command.

scsm Command

Use **scsm** to tell the switch to transfer CSM mastership to the slave CSM.

Examples

```
=>scsm
Transferring mastership to slave CSM...

=>
```

swms Command

Use **swms** to tell the switch to transfer TSM/CPU mastership to the redundant CPU/TSM.

Examples

```
=>swms  
Transferring mastership to slave TSM/CPU...  
  
=>
```


APPENDIX A ACRONYMS

A

AAL	ATM Adaptation Layer
AAL1	ATM Adaptation Layer Type 1
AAL2	ATM Adapter Layer Type 2
AAL3/4	ATM Adapter Layer Type 3/4
AAL5	ATM Adapter Layer Type 5
AALM	ATM Adaptation Layer Mux
ABR	Available Bit Rate
AFI	Authority and Format Identifier
ANSI	American National Standards Institute
API	Application Programming Interface
ARP	Address Resolution Protocol
ASCII	American Standard Code for Information Interchange
ATM	Asynchronous Transfer Mode
AvCR	Available Cell Rate

B

BE	Bridged Ethernet
BER	Bit Error Ratio (Rate)
B-ICI	Broadband Inter-Carrier Interface
B-ISDN	Broadband Integrated Services Digital Network

BOOTP	Boot Protocol
BUS	Broadcast and Unknown Server

C

CAC	Call Admission Control
CAN	Campus Area Network
CAT-3	Category 3 unshielded twisted pair cable
CAT-5	Category 5 unshielded twisted pair cable
CBR	Constant Bit Rate
CCITT	Comite Consultatif Internationale de Telegraphique et Telephonique (Consultative Committee on International Telegraphy and Telephony)
CCR	Current Cell Rate
CDV	Cell Delay Variation
CER	Cell Error Ratio
CES	Circuit Emulation Service
CI	Congestion Indicator
CLP	Cell Loss Priority
CLR	Cell Loss Ratio
CMIP	Common Management Information Protocol
COM	Communication
COS	Class of Service
CPE	Customer Premise Equipment
CPU	Central Processing Unit
CRC	Cyclic Redundancy Check
CRS	Cell Relay Service
CS	Convergence Sublayer
CTD	Cell Transfer Delay

D

DCC	Digital Cross Connect, generic DACS or Direct Connect Card, data interface module
DF	Download Flash
DS-0	Digital Signaling 0
DS-1	Digital Signaling 1
DS-3	Digital Signaling 3
DTE	Data Terminal Equipment
DTL	Designated Transit List
DVT	Delay Variation Tolerance

E

E-1	European standard for digital transmission service at 2 Mb/s.
E-3	European standard for digital transmission service at 34.4 Mb/s (transports 16 E1 circuits)
E-NET	Ethernet
EFCI	Explicit Forward Congestion Indicator
EISA	Extended Industry Standard Architecture
ELAN	Emulated Local Area Network
EMI	Electro-Magnetic Interference
ENR	Enterprise Network Roundtable
EOF	End of Frame
EPD	Early Packet Discard
EPROM	Erasable Programmable Read-Only Memory
ESD	Electro-Static Device
ESI	End System Identifier
ESM	Expansion Switch Module

F

FCS	Frame Check Sequence
FIFO	First In First Out
FTP	File Transfer Protocol

G

GB/S	Gigabits per second
GCAC	Generic Call Admission Control
GCRA	Generic Cell Rate Algorithm
GFC	Generic Flow Control

H

HEC	Header Error Check
------------	--------------------

I

IEEE	Institute of Electrical and Electronic Engineers
ICMP	Internet Control Message Protocol
ID	Identification Number
IE	Information Element
IETF	Internet Engineering Task Force
IISP	Interim Inter-Switch Signaling Protocol

ILMI	Integrated Local Management Interface
I/O	Input/Output
IOM	Input/Output Module
IP	Internet Protocol
IP/ATM	Internet Protocol over ATM
IPX	Internetwork Packet Exchange protocol
ITU-TSS	International Telecommunications Union-Telecommunications Standards Sector
ISDN	Integrated Service Digital Network

J

JPEG	Joint Photographic Experts Group
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K

KB/S	Kilobits per second
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L

LAN	Local Area Network
LANE	LAN Emulation
LE	LAN Emulation
LE-ARP	LAN Emulation-Address Resolution Protocol
LEC	LANE Client
LECS	LAN Emulation Configuration Server

LES	LANE Server
LESELAN	LANE Server Emulated LAN
LIS	Logical IP Subnetwork
LLC	Logical Link Control
LMI	Local Management Interface
LNNI	LAN Emulation Network to Network Interface

M

MAC	Media Access Control
MAN	Metropolitan Area Network
MB/S	Megabits per second
MBS	Maximum Burst Size
MCR	Minimum Cell Rate
MIB	Management Information Base
MMF	Multi-Mode Fiber
MP	Multi-Point
MSM	Main Switch Module
MTU	Maximum Transfer Unit

N

NAKS	Negative Acknowledges
NDIS	Network Driver Interface Specification

NETBEUI	NetBIOS Extension User Interface
NFS	Network File System
NIC	Network Interface Controller/Card
NLS	Natural Language Syntax
NMS	Network Management System
NNI	Network Node Interface or Network-to-Network Interface
NRT-VBR	Non Real Time - Variable Bit Rate
NRZ	Non-Return to Zero
NSAP	Network Services Access Point

O

OAM	Operations and Maintenance
OAM&P	Operations, Administration, Maintenance and Provisioning
OC-1	Optical Carrier 1
OC-N	Optical Carrier n (where "n" is an integer)
ODI	Open Data-link Interface
OOB	Out of Band
OSI	Open Systems Interconnection

P

PC	Personal Computer
PC	Priority Control
PCI	Peripheral Component Interconnect
PCR	Peak Cell Rate

PDU	Protocol Data Unit
PGL	Peer Group Leader
PMD	Physical Media Dependent Sub-layer
PMP	Point-to-Multipoint
P-NNI	Private Network Node Interface or Private Network-to-Network Interface
PPD	Partial Packet Discard
PROM	Programmable Read-Only Memory
PTI	Payload Type Indicator
PTP	Point-to-Point
PTSE	PNNI Topology State Element
PTSE	PNNI Topology State Packet
PVC	Permanent or Provisioned Virtual Circuit

Q

QOS	Quality of Service
QSAAL	Q-Signaling ATM Adaptation Layer. (Q represents the Q-series of the ITU-T (International Telecommunications Union)).

R

R	Read-Only Access
RAM	Random Access Memory
RCC	Routing Control Channel
RCR	Raw Cell Received
RD	Receive Deactivated
RFC	Request for Comment

RM	Resource Management
RMA	Return Merchandise Authorization
RQU	Receive Queue Underrun
RS-#	Recommended Standard defined by Electronic Industries Association
RT-VBR	Real Time - Variable Bit Rate
RW	Read-Write Access

S

SAAL	Signaling ATM Adaptation Layer
SAR	Segmentation And Reassembly
SAR-PDU	SAR Protocol Data Unit
SBE	System Bus Error
SCR	Sustainable Cell Rate
SDH	Synchronous Digital Hierarchy
SEAL	Simple Efficient Adaptation Layer
SMF	Single Mode Fiber
SMDS	Switched Multimegabit Data Service
SNMP	Simple Network Management Protocol
SONET	Synchronous Optical Network
STM-1	Synchronous Transport Module 1
STM-N	Synchronous Transport Module n (where 'n' is an integer)
STM-NC	Synchronous Transport Module n - concatenated (where 'n' is an integer)
STP	Shielded Twisted Pair
STS-1	Synchronous Transport Signal 1
STS-N	Synchronous Transport Signal n (where 'n' is an integer)
STS-NC	Synchronous Transport Signal n - concatenated (where 'n' is an integer)

SVC	Switched Virtual Circuit
SVCC	Switched Virtual Channel Connection

T

T-1	Transmission System 1
T-3	Transmission System 3
TAXI	Transparent Asynchronous Transmitter/Receiver Interface
TCP	Transmission Control Protocol
TD	Traffic Descriptor
TDM	Time-Division Multiplexing
TFTP	Trivial File Transfer Protocol
TLV	Type, Length and Value

U

UBR	Unspecified Bit Rate
UME	UNI Management Entity
UNI	User-Network Interface
UP	Unnumbered Poll
UPC	Usage Parameter Control
UTOPIA	Universal Test and Operations Physical Interface for ATM
UTP	Unshielded Twisted Pair

V

VBR/RT	Variable Bit Rate/Real Time
VBR/NRT	Variable Bit Rate/Non-real Time
VC	Virtual Circuit
VCC	Virtual Channel Connection
VCI	Virtual Channel Identifier
VCL	Virtual Channel Link
VLAN	Virtual LAN
VP	Virtual Path
VPC	Virtual Path Connection
VPI	Virtual Path Identifier
VPN	Virtual Private Network
VT	Virtual Tributary

W

WAN	Wide Area Network
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APPENDIX B EVENT/ALARM MESSAGES

The SmartSwitch 2500 family and SmartSwitch 6500 record and report their operation in real-time using events and alarms. An event is the occurrence of a significant activity. Examples of events are a port going down or a client joining an ELAN. Alarms are a specific class of events defined as “those events that the user needs to know about or attend to right away.” Alarms do not always indicate switch faults; for example, an alarm might indicate simply “LECS is operational.” Notice also that some switch activities are reported both as events and alarms.

Event and alarm messages are saved in circular memory buffers. When the buffers are full, older events and alarms are overwritten by newer entries. Events are stored in shared RAM, while alarms are stored in flash RAM. That means alarms are persistent between reboots of the SmartSwitch 2500 family and SmartSwitch 6500, while events are not.

Event and alarm buffers are called the event and alarm logs. In addition to viewing the messages in the logs, you can enable/disable automatic display of messages at the switch console.



Note Depending on the activity of your switch, the console may be flooded with event messages. Cabletron recommends that you enable the automatic display of event messages for troubleshooting purposes only.

The following table lists switch commands used to manipulate log messages.

Table B-1 Event and Alarm Commands

Command	Description
show events	Displays the events currently logged.
modify eventdisplay	Enables/disables the automatic display of event messages on the console screen.
show alarms	Displays the alarms currently logged.
modify alarmdisplay	Enables/disables the automatic display of alarm messages on the console screen.

Following is an example of the console display following a **show events** command:

```
0 33554474 MAJOR EVENT      000:00:21:641
-----
LES ReadServerConfig: Unable to open config file les.db

1 117571585 MINOR EVENT     000:00:23:502
-----
SAAL connection has become active, initiated locally
Port ID 0x00000002
Protocol 0x02

2 33554656 MINOR EVENT      000:00:35:359
-----
Sendto failed for IP address 206.61.231.153
```

The display provides the following information:

- Message index number — Display sequence number assigned by the console.
- Event ID — Unique ID assigned to each event type at the factory.
- Message Text — Description of the event.
- Severity — Whether the event is critical, major, minor, or informational (Table B-2).
- Time — Time the event occurred, with respect to switch up-time in hours, minutes, seconds, and milliseconds.

Table B-2 Event Severity

Command	Description
Critical	Impacts the entire switch, leaving the system unavailable or in a degraded state.
Major	Impacts a feature of the switch, leaving the feature unavailable or in a degraded state.
Minor	Impacts the system or feature, leaving it in a sub-optimal state.
Informational	An occurrence of an activity that the user knows about.

Following is an example of the console display following a **show alarms** command:

```
switch_prompt # show alarms
Index(ALL)
0 33554652 000:00:32:238
-----
LECS Operational
```

The display provides the following information:

- Message index number — Display sequence number assigned by the console.
- Alarm ID — Same as event ID, described above.
- Message Text — Description of the alarm.
- Time — Time the alarm occurred, with respect to switch up-time in hours, minutes, seconds, and milliseconds.



Note For a switch activity that is reported both as an alarm and an event, the ID, message text and time are identical in the event and alarm messages.

The event ID is an 8 or 9-digit decimal number that allows you to identify the source of the event or alarm. The first five or six digits indicate the software module associated with the switch activity. The remaining digits identify the specific type of activity. Table B-3 lists each software module and its prefix(es).

Table B-3 Event ID Prefixes

Module	Description
System	Implements LAN emulation (LANE) and PVC, port, and memory management.
PNNI	Implements call routing per PNNI protocol.
Call Control	Implements SVC call control.
Signaling	Implements SVC call signaling.
ILMI	Implements management per ILMI protocol.

For example, the following event originates from the signaling module.

```
1 117571585 MINOR EVENT 000:00:23:502
-----
SAAL connection has become active, initiated locally
Port ID 0x00000002
Protocol 0x02
```



Note A complete list of event and alarm messages is beyond the scope of this manual. If a recovery action is not apparent from the message text (or context in which the switch activity occurred), contact your Cabletron representative for assistance.

APPENDIX C TECHNICAL SUPPORT

This appendix tells you what to do if you need technical support for your switch.

Cabletron offers several support and service programs that provide high-quality support to our customers. For technical support, first contact your place of purchase. If you need additional assistance, contact Cabletron Systems, Inc. There are several easy ways to reach Cabletron Customer Support and Service.

TELEPHONE ASSISTANCE

Our Technical Support Center is available Monday through Friday, 8am to 8pm Eastern Time, by calling 603-332-9400.

FAX SERVICE

You can fax support questions to us any time at 603-337-3075.

ELECTRONIC SERVICES

You can contact Cabletron's Bulletin Board Service by dialing 603-335-3358.

Our internet account can be reached at support@ctron.com.

You can also check our home pages on the World Wide Web.

- <http://www.Cabletron.com>
- <http://www.ctron.com>

PLACING A SUPPORT CALL

To expedite your inquiry, please provide the following information:

- Your name and your company name
- Address
- Email address
- Phone number
- FAX number
- Detailed description of the issue (including history, what you've tried, and conditions under which you see this occur)
- Hardware model number, software version, and switch configuration (that is, what part types are in what slots)

HARDWARE WARRANTY

Cabletron warrants its products against defects in the physical product for one year from the date of receipt by the end user (as shown by Proof of Purchase). A product that is determined to be defective should be returned to the place of purchase. For more detailed warranty information, please consult the Product Warranty Statement received with your product.

SOFTWARE WARRANTY

Cabletron software products carry a 90-day software warranty. During this period, customers may receive updates and patches for verified, reported software issues.

REPAIR SERVICES

Cabletron offers an out-of-warranty repair service for all our products at our Santa Clara Repair Facility. Products returned for repair will be repaired and returned within 5 working days. A product sent directly to Cabletron Systems, Inc. for repair must first be assigned a Return Material Authorization (RMA) number. A product sent to Cabletron Systems, Inc., without an RMA number displayed outside the box will be returned to the sender unopened, at the sender's expense.

To obtain an RMA number, contact the Cabletron Technical Support. When you call for an RMA number, your support representative will spend a few minutes with you, making sure the board is defective. Once they confirm the board is defective, they will assign an RMA number. Payment, shipping instructions, and turnaround time will be confirmed when the RMA number is assigned.

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